

**ICL7502**  
**PT7** X

You have a choice.  
Consider the alternative.

For all the details, contact PT7 Sales,  
Ferranti Computer Systems Limited,  
Telephone: 061-437 5391  
**FERRANTI**

## NEWS IN BRIEF

## US warns of long-term ban

PRESIDENT Carter's ban on the export of high technology goods to the Soviet Union could continue indefinitely.

Speaking before a special Senate sub-committee hearing, William Perry, Under-Secretary of Defense, explained that the ban might remain as the Soviet Union was steadily increasing its spending on defence technology. Over the last decade US spending had kept £11 billion ahead of US military technology funding, he said.

## It's an ill wind...

IN the ill-wind department, IBM's problems with the System 38 database computer have blown Wang plenty of good. The company has been inviting people with System 38s on order to send them to the US to promote the merits of the Wang VS computer, and so far has picked up orders worth \$17.4 million with an average unit value of \$145,000.

## Dutch contract

THIRD party maintenance firm Data Processing Customer Engineering has been awarded a contract by KLM Royal Dutch Airlines to maintain its twin IBM 300-65 installation at Amsterdam in the Netherlands. The KLM contract is worth £200,000 over four years.

## Link to Bombay

A SATELLITE link to Bombay was established on the British Prestel system was demonstrated to acclamation at the Computer Society of India's conference to the city earlier this month.

## STOCK ANSWERS TO MOST PROBLEMS

Leading names in terminals, peripherals and ancillary equipment Stag hold in stock now. Leading names with leading reputations you can buy outright or rent—all backed by Stag's service.

Model	Purchase price	Rental per month
Teletype model 43	£795	from £39
LA 54 DECwriter IV	£195	from £39
LA 120 DECwriter III	£1950	from £39
OLIVETTI 1405 RSR	£1195	from £45
OLIVETTI 1405 with dual cassette	£2295	from £84
NO BARRY UNIT	£40	
Newbury Laboratories 7000 range	£495-£795	from £25-£33
TEXAS INSTRUMENTS T1820	£350	from £35
TEXAS INSTRUMENTS T1810PO	£1450	from £39
TEXAS INSTRUMENTS T1745 with double memory	£2395	from £39
TEXAS INSTRUMENTS T1745	£1250	from £35

Stag Terminals Limited  
To Church Road, Teddington  
Middlesex TW11 9PB  
Tel: 01-943 0777  
01-977 9363

## UK companies unite to advise government

A PRESSURE group of British-owned computer industry companies is being formed to advise the government on future procurement policies and the implications that future GATT and EEC regulations may have on international markets.

The group, provisionally named the United Kingdom Information Technology Association, held its first meeting at ICL on January 28. This was attended by directors representing a wide range of UK companies including Ferranti, ICL, GEC Computers, CAP, BOC Computer Services, Pactal, Data Recording, Kode, SPL, and Penny and Giles.

The meeting was described as "very exploratory" but there was a positive response and the points raised are to be further considered by the individual companies in preparation for the next meeting in March.

Main objectives at present are to prepare for the change in the government's "Atlas power" procurement policy at the end of the year and to be ready for new GATT provisions that are due to come in to force at about the same time.

One reason given for the need for the group was that the Computing Services

Association was not suitable for a lobbying role because it included companies which were controlled and owned by overseas interests.

National Enterprise Board companies Nexos and Inmos were both invited to send representatives to the meeting and although Inmos director Innn Barman was unable to attend he favoured such a venture. He told Computer Weekly, "There is a need for MPs to have a knowledge of information technology and any mechanism which helps towards that understanding should be supported."

## IBM gives SNA link to VM/CMS users

CONFIRMING the growing importance of the VM/370 operating system in IBM's strategy for the 1980s the company has announced major enhancements which enable native mode VM/CMS users to join the Systems Network Architecture camp.

The announcements, forecast in Software File last month (CW, January 24), comprise four new licensed programs.

Probably the most important is VM/VCNA, VTAM Communications Network Application, which allows users of the VM/CMS Conversational Monitor System to access SNA-based applications on all systems in an SNA network. Additionally, it enables terminals attached to an SNA network to be used as VM/CMS consoles and to use the interactive facilities offered by CMS. VM/VCNA costs £142.60 a month and will be available between October this year and April 1981.

Also predicted and long desired is the VM/PTF Pass Through Facility which enables local or remote CMS users to be dialled into applications or sub-systems running under a guest operating system on the user's own host, or to pass through the host processor to access such sub-systems on a second host. Thus, a bridge is provided between

between CMS and sub-systems like CICS/VS, and TMS/VS databases.

VM/PTF costs £63.40 a month and will be available in May. VM/SP, Systems Product, is a replacement for both the basic and the full VM/Systems Extension programs and support for these will be withdrawn in September 1981 and March 1982 respectively. VM/SP contains two new functions: a CMS editor with a "powerful" command set, enabling users to write macros for text editing and other applications; and VM support to the 3279 colour display and the wide-screen model five version of the 3278 display. It costs £157.30 a month, compared with £75.60 for basic VM/SE and £785 for full VM/SE.

The announcement is completed by an RSCS, Remote Spooling Communications Subsystem, available in October and costing £39.50 a month. RSCS extends the VM/370 spooling facility to local and remote 3286, 3287, 3288 and 3289 printers.

Welcoming the announcement, Des Lee, chairman of the IBM Computer Users' Association, noted that the association and the big users organisation, Guide, had been pressing for such facilities. "I am pleased to see IBM responding to our wishes," he said.

## Data 100-IAL's joint effort

## From front page

inents, the IAL Gemini packages are intended to be used with little or no modification. Data 100 admits to this contradiction, but still likes the name.

There are packages covering sales ledger, purchase and nominal ledger, stock recording and payroll and they can be purchased individually at prices between £500 and £700.

The 400 series hardware is built by Sycor, the organisation acquired by the Canadian telecommunications firm Northern Telecom not long before it took over Data 100 and set up Northern Telecom Systems Corp. A few 400 series systems are already used by Data 100 customers in the UK for distributed processing and communication with the mainframe, 3270 emulation being one optional facility. Existing systems software includes Cobol and Basic.

## UK firms in race to buy GA

## From front page

market, process and industrial control. General Automation is also in the factory data collection and environmental control markets, where Burroughs is not a major contender.

One factor likely to hamper any Thorn bid for General Automation is the effort the company is having to put into sorting out the problems at EMI,

which it acquired late last year. Thorn is currently trying to secure the future of the loss-making EMI medical scanner division, either through outright sale or a joint venture, but emphasises that any solution, which would have to assure the future of both staff and customers, is unlikely to be found for several weeks. Talks have been held with US and other companies in the medical electronics field.

## Strike called off by NCR engineers

NCR service engineers voted to accept one of the company's two latest pay offers and return to work, thus averting a possible strike from their union representatives.

The 750 men were due to take strike action at the beginning of this week (CW, February 21) but in a ballot last week there was an unexpected 2 to 1 vote for an offer which gives an across-the-board pay increase of 17% backdated to December 1, 1979, and a 2% pay increase and reduction of the working week from 40 to 38 hours on June 1, 1980.

Ten pay offers were made by NCR in response to an initial demand for a 30% pay increase by ASTMS.

"I am very disappointed with the acceptance of this offer," said Jim Morger, divisional office for ASTMS, "but there is still the question of London weighting to be resolved, and we are meeting the company on March 17."

## IGs at Ideal Homes

A DISPLAY aimed at showing the general public how integrated circuits are made and how they can be used is to be mounted at the Ideal Home Exhibition in London next week, by Plessey Semiconductors.

**Cut your Disc Storage Costs**

System Industries' 9400 range will help cut your disc storage costs dramatically.

Our high-capacity, fully DEC RMO 2/RMO3 compatible disc systems are available for any DEC computer with a unique connection.

We also provide cache bus or SBI 67 or 256 Megabyte capacity per spindle. Interfaces are available for the 1170 with direct connection to the cache bus or the VAX 11/780 with direct connection to the SBI.

Wa also provide systems for all Data General Nova and Eclipse computers.

Prices for complete systems start from £10,000, including delivery and installation.

**System Industries**  
System House  
Guildford Road  
Woking Surrey GU24 7QQ  
Tel: 04253 5077  
Telex: 85512

**AVAILABLE FROM ATLANTIC JUNE 1980**

IBM 3033, NO8

Please call Steve Mason on 01-683 9481 for further details

Printed in Great Britain by Q.B. Limited, 100, Chiswick Road, Uxbridge, Middlesex, and published by P.C. Electronics, 100, Chiswick Road, Uxbridge, Middlesex.

**The only real alternative**

**Plessey Peripheral Systems**

Harrowdon Road, Basildon, North Essex S44 0DE  
Telephone: 0624 85161/161-162

**Data Preparation**

We have the capacity to punch your peak loads, file set-ups or regular work on 80 column cards. Croydon: Nada Waugh.  
Telephone: 01-688 6047

Peter Mettich Associates Ltd  
International Computer Services  
Leamington Road  
22-24 11th Road  
Croydon CR9 1TH

## Briefing

## EEC £9m support plan

SOFTWARE and systems companies are being invited to apply for financial support for computer projects from the EEC Commission. At present, £9 million has been allocated to the scheme. Projects should be socially, environmentally or commercially "useful".

Each project should involve at least two users or companies and should further EEC objectives aimed at implementing standards, portability and conversion. Support will be in the form of interest-free loans of up to 50% of the cost for the development period and the first two years of implementation. Loans will be repayable with interest out of profits earned.

## Resolver at HPAC

A RECEIVER has been called in at Oxford software house HPAC whose Fortran 77, Coral 66 and BCPL compilers are sold by Computer Automation on its Naked Mini computers (CW, July 13, 1979). There were plans for a Pascal compiler and finishing touches to an RTL-2 compiler will probably have to be made by Computer Automation itself.

## Dik's WP buy

GEC's US office equipment company A. B. Dick of Chicago, is reported to be buying the manufacturing rights to a shared-logic word processing system manufactured by Henrich Electronics of Nashua, New Hampshire. Called Magna SL, the system is already marketed by Dick.

## Surrey's second

A SECOND Univac 1100/80 system, valued at £1.8 million, has been ordered by Surrey County Council for use in developing departmental services and a larger terminal network.

## Bid withdrawn

PARADYNE has withdrawn its bid for UK communications manufacturer Case, and is seeking to renegotiate terms of the takeover. The reason is that the offer made last autumn was all in Paradyne shares. Since then the Paradyne share price has risen so much that the \$11 million bid is now worth \$19.25 million and Paradyne thinks this is too much.

## Compelec sold

COMPELEC, which went into voluntary liquidation last month (CW, February 28), has been taken over by Beam, part of Unilever. The London centre for Beam, based on the Compelec remains, will become the headquarters for the operation. There are also centres in Manchester and Cheltenham.

## WP launch

VYDEC is launching a new version of its full-page screen word processor, incorporating new software. Called the model 1800, the new machine will sell for about £8,500.

**COMPUTER WEEKLY**

Number 697 Thursday, March 13, 1980 (Price 20p)

## Second £25 million lined up for Inmos

THE long-delayed second £25 million for the NEB-backed semiconductor company Inmos could be announced today (Thursday) or tomorrow. And on announcement on the company's application for an Industrial Development Certificate for its first factory in Bristol may be made at the same time.

If the money is eventually

granted, it will be made against a background of political rows between the NEB, the government, and regional groupings of MPs. There are even suggestions of a minor Cabinet split over the funding of the company, and the Bristol site.

The rows revolve around the siting of Inmos's first factory. Ministers in the last Labour government, including ex-Prime

Minister James Callaghan, have called for the IDC application to be rejected because the company is not locating in an assisted area. The ex-Ministers say they received a commitment from the NEB to do this, but the company states that it never gave such a commitment.

Industry Secretary Sir Keith Joseph has said that the decision on the actual location of the

company's factory is a matter for the NEB and Inmos, and that he has no power to direct Inmos where to go.

Where Inmos does go if the IDC for the Bristol factory is turned down, is a matter of some conjecture, and it is possible that it could get the money but not the certificate.

The company does not have an official alternative site.

## UK M80s for IBM projects

MAJOR development work on IBM-oriented software systems is to be carried out by Magnuson M80s, installed in the UK by Générale de Service Informatique and CAP-PP. The IBM-compatible M80s are the first machines to be shipped to Europe by Magnuson.

GSI in the UK has received the go-ahead from its French parent to run an M80 under VM/CMS at its Slough computer centre in order to develop software that will ultimately be used by GSI on the Continent to provide interactive access to its many IBM-based systems. Most of these run in batch or remote batch mode at the moment.

GSI in the UK has no in-house machines, but the software development on the M80 should be the prelude to the build-up of services based on IBM or IBM compatible machines operated by GSI UK itself.

Following a period of coolness by IBM, VM/CMS is in the ascendancy again as evidenced by the SNA enhancements to the operating system described in Computer Weekly last month. CAP-PP's M80 at Richmond, Surrey, will be used entirely to develop additions to the firm's improve range of software products for IBM users. Existing improve products are already being sold in the US by Altergo Software Inc, the marketing agency just acquired by Insee Products (CW, March 6).

Magnuson has won about 70 orders in the US to date, most of which have been for M80 processors to directly replace IBM CPUs. But GSI and CAP have both ordered complete systems from Magnuson including peripheral hardware from plug compatible suppliers like Storage Technology and Control Data.

GSI is paying about £7,000 a month for a leased M80 Model 4 coupler costs FF 624,000 (about £68,000).

SEMS in the UK is concentrating on the Solar line and is unlikely to announce the S25.

## Three buses on mini

THE use of three buses in the most striking feature of the new SEMS Mitra mini, announced in Paris last week, as the Mitra 525. As exclusively reported in Computer Weekly the mini uses the high speed Motorola 10800 emitter-coupled logic bit-slice microprocessor.

The chip is also used in the Univac 1100/80 mainframe, but the Mitra 525 is believed to be the first minicomputer built around it. It is also the first bit-slice processor from SEMS.

The three buses, which look like a single bus to the user, include a memory bus, taking 64 or 128K-word modules of MOS memory; a peripheral bus to which are attached input-output and communication processors; and a system bus.

## Palmer in India

THE computer industry in India may be small in world terms, but many companies in the sub-continent are winning a strong foothold in the high technology business. In his first report on the progress of the industry, ICL's partner IOTM

## Also...

- Computers on H-series 2
- Letters to the Editor 2
- The industry lobby 3
- Gib's Mythology 4
- Page Six for Programmers 5
- Software File 6
- Op Spot 6
- Prime's office bid 9
- People and Events 12
- Technology Military call 13
- Progress of the IBM 14
- Computers in Brum 15
- Computer News 16
- Book Reviews 21
- Product Notes 22
- Advanced File Design, Part 6 25
- Sales Bit 25
- Schools cautious over 6m 26

**JOB VACANCIES: PAGES 26-55**

**NEWBURY**

Smart Visual Display Terminals

Prices from £495

Newbury Laboratories Ltd  
Newbury Laboratories Ltd  
100, Chiswick Road, Uxbridge, Middlesex  
Tel: 01-943 0777

## S Africans take over CAP subsidiary

A 60% share of CAP SA, the South African subsidiary of the British software house CAP-PP, has been bought by the P-E Consulting Group in Johannesburg. The group is an independent associate of the P-E Group of Egham, Surrey.

The move gives CAP SA independent control in its South African operations, solving the long-distance control problems between parent and subsidiary. CAPSA has also suffered from the high turnover of staff in the competitive South African software market, a problem which the limited support from the UK could do little to solve. The relationship with P-E is aimed at giving staff stability and job security.

Jim McAulay, managing director of CAP-PP, said that the group, who did the groundwork for CAP SA in 1976 and was involved in the deal, commented, "The sale was the best of a number of options. Our

Turn to back page

## 2903 replacement next week

REPLACEMENT for the highly successful ICL 2903 is set to appear on March 20. Known in the company under various code names such as the 290B and M1, the machine is expected to offer the power of the 2901/50 at the price of a 2903/40. First deliveries are scheduled for June. A field-upgradable model which will supplant the 2903 with first deliveries in January, 1981, may also be included in the initial launch.

Most interesting feature of the new system is likely to be the operating system. ICL is expected to announce an enhanced version of the 2903 Exec, code-named EMOR 30, and to follow it with Super EMOE later this year (CW, December 13, 1979).

**Cut your Disc Storage Costs**

System Industries' 9400 range will help cut your disc storage costs dramatically.

Our high-capacity, fully DEC RMO 2/RMO3 compatible disc systems are available for any DEC computer with a unique connection.

We also provide cache bus or SBI 67 or 256 Megabyte capacity per spindle. Interfaces are available for the 1170 with direct connection to the cache bus or the VAX 11/780 with direct connection to the SBI.

Prices for standard units, 67 Megabyte systems start at around £20,000, fully installed to the end user. Substantial OEM discounts are offered.

We also provide systems for all Data General Nova and Eclipse computers.

**System Industries**  
System House  
Guildford Road  
Woking Surrey GU24 7QQ  
Tel: 04253 5077  
Telex: 85512











## Concise and readable guide

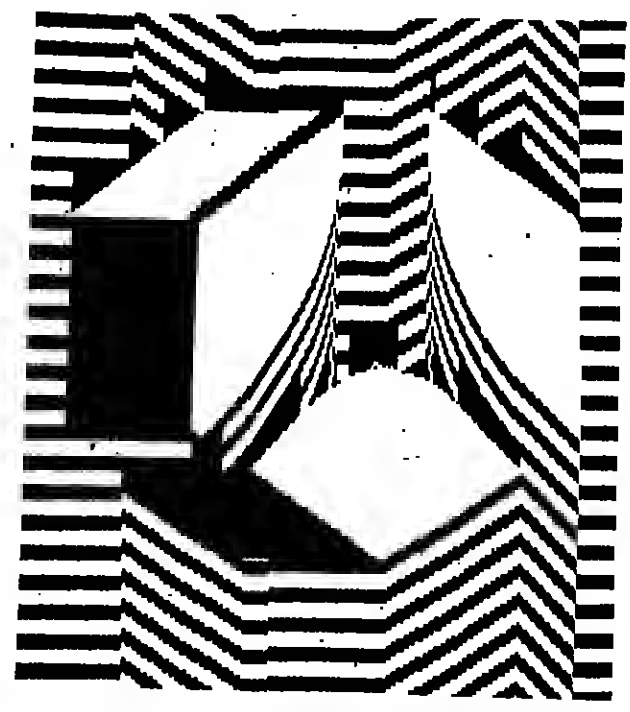
MANY books are now available for programmers which provide instruction and advice on various aspects of their craft. A Guide to Good Programming Practice, by Brian Meek and Patricia Heath, however, goes one step further than most in that it covers virtually every aspect of programming in a concise and readable form, with advice from ten specialists from industry, education and commerce. Problems investigated include analysis, design, testing, debugging, selection of a language and the use of language standards, program documentation, maintenance and teamwork.

The book is not specific to any particular language and is intended to be read in conjunction with a language manual or textbook. Guide to Good Programming Practice, by Brian Meek and Patricia Heath. Ellis Horwood Ltd, Market Cross House, Cooper Street, Chichester, West Sussex.

## Personalised extensions to Cobol 'dangerous'

MANY readers have expressed interest in last week's article about the company and language named Cobra and the general success of software generators.

by Judith Morris



Version on a hexagon. Conception: A. Caron. Dessin: J.F. Colonna. On a SEMS computer at LACTAMME (the laboratory of Ecole Polytechnique and Ecole Nationale Supérieure des Télécommunications, France).

## THOMSON-CSF INFORMATIQUE: PART OF A BIGGER IDEA

Systems and products in Electronic Data Processing are evolving at a rapid pace. More than ever before, a unified effort is called for to research and utilize all possible technological advances and alternatives.

THOMSON-CSF INFORMATIQUE combines its special talents, teams of experts, and superior technological know-how to provide the ultimate range of services and products for its clients.

And THOMSON-CSF INFORMATIQUE is only part of the THOMSON-CSF equation. Our Data Processing benefits from the expertise and wealth of the technical, industrial and commercial resources of the total THOMSON-CSF Group - a worldwide leader in electronic systems and equipment, telecommunications and components.

Because it's not enough just to keep up in our changing world, THOMSON-CSF stays ahead. And we can help you stay ahead, too.

THOMSON-CSF INFORMATIQUE: finally the total concept in Electronic Information Systems.



23 rue de Courcelles - 75008 Paris-France - Tel: 111 501 90 00

- |  |   |   |   |  |   |
|--|---|---|---|--|---|
| <b>Bolton</b><br>SEMS Computer Services SA<br>10, rue de Genève, Boite 9<br>1140 Brussels<br>Tel: (02) 742 18 00 | <b>Brussels</b><br>Amelievre<br>Tel: 1321 20 45 40 55 | <b>West Germany</b><br>SEMS Computer GmbH<br>Karlshausenstrasse 10<br>4000 Düsseldorf<br>Tel: (49) 211 41 90 91 | <b>Spain</b><br>THOMSON-CSF de España<br>Calle del Greco, 27<br>Madrid 3<br>Tel: (34) 250 84 00 / 250 84 08 | <b>Great Britain</b><br>TEASL Thomson Equipment and Systems Ltd<br>Hunting House, Central Way<br>North Fillingham, Middlesex<br>Tel: (44) 1751 02 41 | <b>Switzerland</b><br>MODULOR SA<br>Königsplatz 14 CH-1007<br>Bern-Liebefeld<br>Tel: (41) 31 53 22 22 |
|--|---|---|---|--|---|

But it appears many people use software generators so efficiently that the programmers themselves are unaware of their existence.

What is more, different companies have very varied opinions about the way generators should be used.

John Piggott, a director of SPC Systems in Wimbledon, rang to tell us of his views and his experience of the subject.

"Our company uses a Cobol generator which is installed at many sites throughout the UK," he said. "It is similar to Cobra in theory, but the emphasis is different."

The emphasis Piggott speaks of is on the language itself rather than the generator. Purity of the Cobol language is something Piggott is eager to maintain, and he referred to the practice of individuals developing their own extensions where they found Cobol unsatisfactory as a "very dangerous activity".

The difficulty starts when one asks: Whose work does the generator replace? Given that it is the programmer's, this means that when it becomes time to change and maintain the program, he has to deal with something he had no hand in writing.

"What is the code?" asks Piggott. "Is it Cobol or not? The new element in Cobol which is introduced by all these individual sites makes it a completely different language, so people everywhere have their own personalised language. This just makes things utterly confusing."

The immediate reaction is, of course, to say, "Well, if Cobol was a better language, these things wouldn't be necessary." So why do people need to write and apply all these extensions and macros?

"Because Cobol is out of date," says Piggott, "there is a

tendency for people to use packages and utilities which introduce these new languages."

Piggott's answer to the problem therefore lies not in developing generators but in improving Cobol. This is easier said than done, and there are inevitably many obstacles in the way of those who try to do so.

"Cobol make standard changes but at a very slow rate. It can take up to ten years to make changes to Cobol."

Therefore, to formulate new standards and features, people require takes out only a great deal of careful planning but a long time.

Piggott's main aim is to implement changes to Cobol which will cater for the needs of many different installations at the same time.

"The report-writer option in Cobol is already there in standard, but is one of those features which many people don't implement."

"IBM officially provides a standard, but a big number now use it who don't know it existed before."

More or less the same happened with the Cobol validation feature, which SPC implemented on ICL 1900 and 2900 machines. Four years ago a committee brought out a report on validation in Cobol, which was resurrected last year, and a new report was brought out which now provides a specification for validation.

The Cobol validation feature is a "natural extension to Cobol" which provides input validation, updating and error reporting.

"We feel that the idea to improve Cobol itself and not to improve Cobol with extensions is a good one," says Piggott, "eventually forming a standard language which is powerful and easy to use for everybody without the need for these personal extensions."

## Struggling and juggling

A FEATURE on this page some months ago about the company F International revealed to some extent the role and responsibilities that professional women can have in the world of computers (Page Six, November 8, 1978).

Women in the US, however, seem to be finding things more difficult, according to a recent Women in Data Processing meeting in New York.

One speaker at the conference, a senior manager for Price Waterhouse, said, "Women struggle and juggle their lives and careers not only in subtle but obvious ways. They also contend with mental guilt and pressures from other people."

These pressures seem to be the result of "juggling" priorities "one day a sick child, the next a business trip."

Strangely enough, the employees of F International and indeed other women in industry we have spoken to view these conflicts quite differently.



THIS week's puzzle is 'you might call it a "disappearing" puzzle. The seven pieces in the picture make up a square, but no piece is turned over. See page 53 for solution.'

## SOFTWARE FILE

# Altergo database will hit IBM's DL/I

THE launch of Altergo's database Aros is timed to coincide with IBM's own DL/I-DOS-CICS database management system recently published in the US computer Press and, not so auspiciously, with Insac's takeover of the ailing US subsidiary Altergo Software Inc (CW, March 6).

Altergo's managing director, Dave Brownlee, is expecting it to add about £3 million a year to the gross sales value of Altergo's software products and increase current sales by 50%.

The company hopes that Aros will find favour as a communications software alternative to IBM users across the 400 range to the 30X. It can be used with CICS/VS or, should a user choose to be dependent on Altergo rather than IBM software, with Altergo's flagship, Shadow II, which already has over 400 users.

Altergo selected Aros after a search for a product to provide a database/data communications environment which would answer the demand for online real time processing.

Ita Swedish developer, Rosam Adb, has already spent 10 years working on Aros, in conjunction with Ase, the Swedish manufacturing company which now runs the system with an 8-megabyte 3033 under OS/MVS, with 1,300 terminals accessing a database spread across 50 3350 disc drives.

Apart from reduced overheads in memory and CPU utilisation compared with IBM's DOS/VS DL/I, Aros is sold to cut the disc I/O overhead by half. Physical I/O, says Altergo, is faster than any IBM access method, and the elimination of pointers and chaining techniques results in fast response times.

If the product lives up to the claims made for it, it might find a ready market in the UK. A recent Computeworld survey reported that of 25 4331 users, only five intended to use the DL/I-DOS-CICS database, and according to complaints from users who had

## International directory

FIRST edition of the International Directory of Software, compilation to the Computer Users' Year Book, is now available (Software Supplement, February 14).

Its main purpose is to enable readers to locate software products suitable to their needs and, compatible to their equipment, and it provides over 1,000 pages of information on important software products throughout the world.

The information is divided into six sections with the aim of helping the user to make a rapid selection and comparison of products. The first of these is a comprehensive index of contents in English, French and German, and the other five sections are all preceded by instructions on how to use them in three languages.

The largest section provides detailed software product descriptions in a uniform format, dividing them into categories such as development aids, compilers and utilities.

The other sections give further details, comprising an index of products by category with hardware requirements, an index of industry specific products, profiles of software suppliers, and an alphabetical list of products.

## Covering gap in products

A PAYROLL and personnel inquiry system originally designed for Banque Nationale de Paris is now being marketed in the UK by its developers, the Burroughs specialist software house Watsons Computer Systems of Liverpool for about £8,000.

Watsons believes that the product covers an area not catered for by Burroughs' own software, and hopes to find a market for the system among banks and large institutions using Burroughs 90 and upward hardware.

The payroll and records integrated system, known as Paris, stands alone as a set of five modules written in Cobol, centred around a basic unit. Using simple screen menus and categories specified by the user, relatively unskilled staff can select information by entering up to 20 parameters.

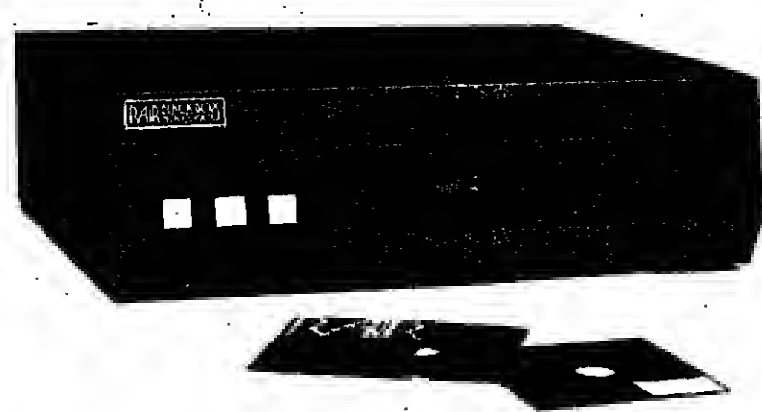
## Harris gets Fortran validation

HARRIS Computer Systems has achieved US government validation for Fortran 77.

Supported under the Vulcan operating system, the Fortran 77 compiler is now available in the UK with the Harris 100, 500 and recently announced 800 series.

Fortran 77 is the ninth language to be made available under Vulcan, which also supports T-ask, Total and Shadea, the screen-handling and data-entry system.

# The microcomputer that thinks it's a mainframe



## RAIR Black Box

You probably don't need convincing that microcomputers make sense, both functionally and economically. However if you're a serious computer user you want the same levels of performance, flexibility and reliability you've had (we hope!) from your mainframe systems! It was to meet these goals that we designed our Black Box Microcomputer.

Using proven state-of-the-art technology, we packaged our 8085A microprocessor with 64 K bytes of RAM memory, two high capacity minidisk drives, programmable I/O interfaces, Real Time Clock, etc. into a compact desk-top system, ideally suited to a wide range of microcomputer applications.

system could grow with your applications. You can connect up to 16 separate terminals and peripherals, and operate them simultaneously, and for large database applications you can add our new Hard Disk.

To: RAIR Limited  
30-32 Noel Street, London WC2A 9PS  
Telephone 01-838 4883

☐ Please send literature

☐ Please telephone

Name \_\_\_\_\_

Position \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

Tel. \_\_\_\_\_

subsystem giving up to 80 M bytes of on-line storage, all fully supported by our enhanced disk operating system.

But of course a microcomputer is only as good as its software. Our software catalogue includes BASIC Compiler and Interpreter, FORTRAN IV and COBOL 74 Compilers, Sort/Merge, Database, Communications, Word Processing packages, Scientific and Commercial Applications, etc.

Most important, the Black Box has a proven track record and is supported by a U.K. wide maintenance service.

Oh we nearly forgot! The price of the Black Box starts at just over £2000, so if you're thinking about micro, we'd like to hear from you.



## Post Office commissions SPL for portable Chill front end

THE Post Office has commissioned SPL's International research centre in Abingdon to produce a portable front end for its Chill computer.

Chill is the language developed by the International Telecommunications Consultative Committee, which is based on the concepts of languages like Algol 68, PL/I, and Pascal. It is intended to have a

broad application and will be adopted as the standard language for System X.

SPL is already involved in designing, testing and evaluating the US Department of Defence Language Ada, as well as research on a real time variant of Pascal, a commercial Basic, and RTL/2 on a wide range of mainframes, minis and micros.

**HEWLETT PACKARD**

**KSR's**

30 cps from £46 per month  
120 cps from £87 per month  
Portable from £63 per month  
Daisy Wheel from £104 per month

**Monitors and VDU's**

Standard (Teletype compatible) from £33 per month  
APL from £47 per month  
VT32 and other options from £42 per month

SHORT TERM RENTALS ALSO AVAILABLE

**ASR's**

Integral terminals from £87 per month  
Separate P/T Cassette units from £43 per month  
Separate Diskette units from £60 per month

Contact Mike Brooke or Philip Ely. Tel: Byfleet 53131 & 49518

**MBS Rentals**

Specialists in the renting of terminals

MBS Rentals, Aldwych House, Madder Lane, West Byfleet, Surrey

**ANDERSON JACOBSON**

**TRANSDATA**

**A M JACQUARD**

**MELLORDATA**

**NEWBURY LABORATORIES**

**TEXAS**

**TREND**

**QUME**

**DIABLO**

**LEAR SIGFLER**

**TALLY**

**PERICOM**

**TECHTRAN**



## OP SPOT

# Friendly system, friendly people

COLLEGE and university sites are well-known for providing their operators with an easy, relaxed environment in which they are, left alone to a certain extent — as long as the work gets done, that is.

The operators are allowed to dress in an informal fashion and deadlines are not treated as life or death issues, as they tend to be at the money-conscious bureau or commercial installation.

So it's good to hear from an operator who works at a university site — at Imperial College in London, to be exact.

He writes, "We operate on IBM 370 under IBM's latest operating system, VM370, which I find easy as it has a very friendly user interface."

"The CMS (Conversational Monitor System) interface allows for real user flexibility. A terminal user, for instance, can redefine his whole command directory into French if he so desires by using the SYNONYM facility."

As the operating system is

friendly so are the people he comes into contact with during his working life: "It's a great working at the college as my relationships with my colleagues are so relaxed."

Our friend is, however, aware that operators are treated as secondary to systems and programming staff both at his site in particular and throughout the industry in general.

Commenting on the attitude of the industry, he says, "I think the pay of the average operator is quite good. However, our role in the industry does tend to be under-estimated, as is our ability to do more responsible and creative work in the computer room."

He blames management for not giving operators staff the chance to use their skills and initiative.

Referring specifically to his own installation, he goes on, "I have been writing EXEC procedures which are very useful for performing information retrieval and command despatch on

our main console.

"Although these are used by all the operators I have come under criticism from above for writing such files, and to stop me from doing this, it has been suggested that we operators have a read-only disc rather than a read/write one."

This doesn't bother the operators too much, though, as they are able to negotiate with the management to a certain extent.

"But this is an example of the sort of antagonism operations staff have to put up with," he points out.

It is for that reason he advocates operators working together and standing up for themselves when confronted with hostility from other members of the industry.

## 'Paper qualifications no guarantee of success'

"A FRIEND of mine didn't get past secondary school, but he's proved to be a far better programmer than a number I know who have computer science degrees."

"Surely that proves that paper qualifications aren't a guarantee of success in the computer industry."

Thus Derek Price replies to comments on careers and career progression (CW, February 21) made by John Wedge, a Burroughs 3500 operator.

In essence, Wedge said that operators tend not to be promoted out of the computer room because most of them are not very well-educated and have little interest in career progression.

A DEC PDP-11 operator at a merchant bank in the City of London, Price comments:

"I must disagree with the view of John Wedge when he says that most operators are recruited at a 'relatively low level', most sites being content with just a few O-levels."

"Then he says that few operators are career-minded. Well, I have been in operations for some three years and in my experience that is just not the case."

Price sees two major barriers in the path of the operator looking to make good in the computer industry: the widely-held view that career progression means a move into programming, and the fact that most DP managers have a background in programming.

On DP managers, he comments, "Most DP managers have been in programming at

some stage during their career and therefore tend to be, rather unsympathetic to the operator when it comes to picking someone for promotion."

He goes on to suggest that, when given the opportunity, persons from an operations background make better DP managers than ex-programmers.

"I can't help thinking that a thorough knowledge of hardware, operating systems and perhaps some systems programming would be more valuable to the DP manager than any amount of applications programming experience."

I must agree that most operators are interested in making good in the industry but that they get few opportunities to do so.

I also share Derek Price's view that the career background of many DP managers makes them insensitive to the problems and aspirations of their operations team.

At the smaller installations there are likely to be few technical support staff and so progression does, in fact, often mean a move out of operations and into programming.

But in my opinion career progression should be treated differently at the larger installation. The knowledge and expertise should be put to use in such areas as systems support, applications support, operator training, the TP section and systems programming. The operators should also be given the chance of moving into applications programming if that is what they want.

## ICL machine needed

THERE'S a 16-bit computer studies course (CW, October 18) on at Trisham College in Corby and it's going very well — apart, that is, from one small hitch: the time it takes to run the students' programs on the system.

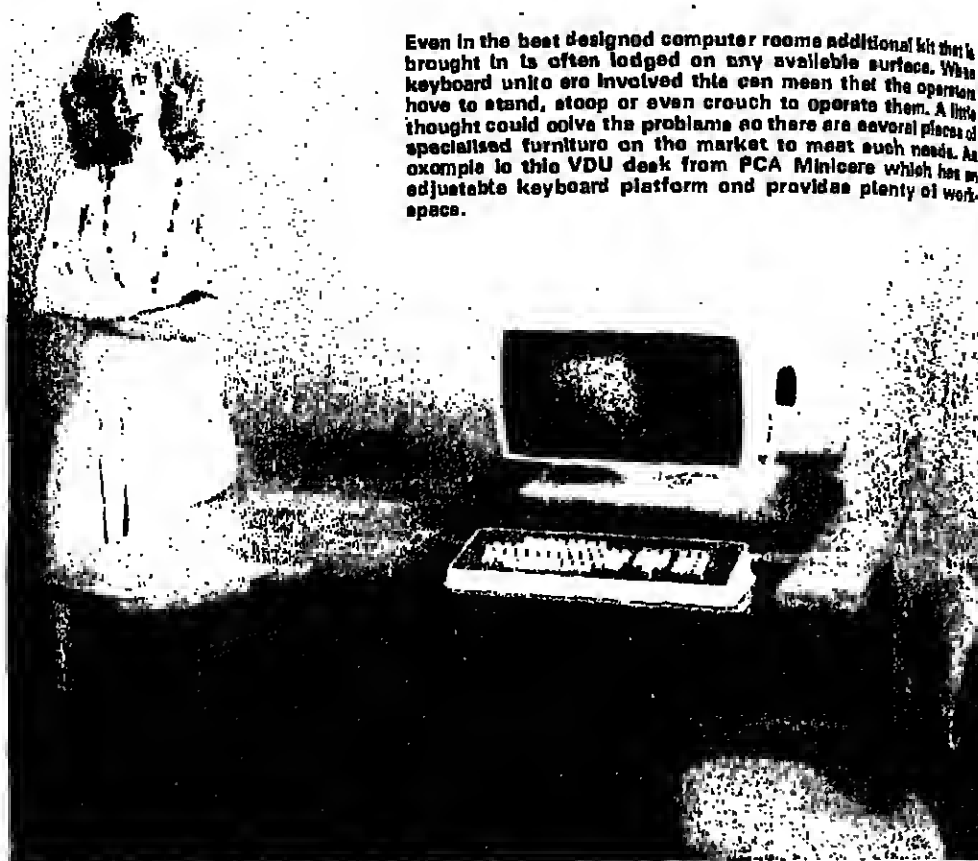
The college has an ICL 1901A, a single-program machine which takes about 20 minutes to compile a Cobol program, according to lecturer Pip Rams-

den, who says the system is a bit of a bottleneck.

If you're the manager of a site which is converting from a medium-sized ICL 1900 system, don't throw the old machine away or leave it to rot in the back yard. Why not let Trisham College have it, instead?

Contact Pip Ramsden, Trisham College, Corby, Northants, Tel 03304 3252.

by Bernard Allen



Even in the best designed computer rooms additional kit that's brought in is often lodged on any available surface. While keyboard units are involved this can mean that the operators have to stand, stoop or even crouch to operate them. A little thought could solve the problems as there are several pieces of specialised furniture on the market to meet such needs. An example is this VDU desk from PCA Minicare which has an adjustable keyboard platform and provides plenty of work space.

## IBM fails in 'bias' claim against judge

It looks as if IBM and Judge Edelstein are stuck with each other.

Eight months after IBM lodged an appeal against the 70-year-old judge on the grounds that he was biased against the company (CW, July 28, 1979), the Second Circuit Court of Appeals has turned down the petition, saying that it was legally insufficient and that anyway it was made far too late in the case.

Judge Edelstein has been hearing the US Justice Department's anti-trust case against IBM without jury since it opened in May 1975.

IBM is considering the decision. It could request a hearing before the full appeal court, or appeal to the Supreme Court.

Observers believe that both sides will finish presentation of their cases in June, and talks on an out-of-court settlement are continuing.

# Prime makes bid for office market

PRIME is entering the office systems market with a selection of software packages to provide word processing and electronic mail on its existing minicomputer line.

Due to be launched in April, the systems are already running experimentally at the Bank of Bergen in Norway. That system is also being used for computer-aided instruction and communication with IBM and compatible mainframes using 3270 emulation.

The word processing and electronic mail software make up a package called Primex, produced by US software house ACS. Other software packages in use in the system have been around for some time.

The Bank of Bergen is trying out a whole range of new functions with the system, aimed at combining as many applications as possible in each desk-top terminal. The new equipment is separate from the bank's existing Philips branch terminal network and carries

administrative messages and management information, not the bank's financial transactions.

A connection with the branch terminal network may be phased in later.

The office system consists of model 350 minis in Bergen and

Oslo with six smaller 450s in other towns currently being installed. Communication links with IBM 3033 and Amdahl mainframes are used for updating foreign exchange information and with a direct connection into Swift, the international banking network.

## Abacus offers low-cost word processing package

LOW-COST word processing is now being offered by Abacus Computers as an extra software package for its PT208 desk-top computer. For £4990 purchasers get a 24-line VDU, 64K processor, twin double-density floppy disc drives, a Nippon Electric Spinwriter printer, and a word processing software package called Magic Wand consisting of two separate programs.

The WP software is split because there is not room for it all to be present at once, with text,

in the machine. One part, called Edit, is used for inputting and editing text, and is capable of printing rough drafts. The other, Print, formats the text for finished printing.

Conditional pricing can also be done, such as selecting out all addresses in a particular area.

The PT208 hardware is made in the US by Abacus' parent company, Texas Electronic Instruments. Existing users can buy the WP software for £750.



The Marconi ground station terminal controls a three metre dish antenna used in the satellite link between Rutherford laboratory and CERN in Geneva.

## Rooftop satellite link to Geneva under way

A SATELLITE link was inaugurated last week between Rutherford Laboratory, near Oxford, and the CERN European Nuclear Research Centre in Geneva, using three metre dish antennae — the type expected to be used on rooftops in future office-to-office services.

The link uses the Orbital Test Satellite put up by the European Space Agency in May 1975 and is one of a series of experiments being run in preparation for the European Communication Satellite system to be established during the early Eighties for the European PTTs.

The scheme was proposed by the EEC, and backing for the UK end comes from the DoI. In April CNUCE physics laboratory in Pisa will join in, followed by the DESY laboratory in Hamburg later this year and the University of Graz in Austria, University College Dublin, and the French Informatics research institute INRIA, near Paris, within the next two years.

In the early stages users will operate by booking time on the link through the administration office of Eutelsat in Paris, but later a simple time division multiplex scheme will be set up to allow ground stations to contend for channel space.

Close co-operation has been

achieved internationally on the scheme, with software being developed at Rutherford to run on minicomputer ground station controllers at each site while hardware to interface the minis to the ground station was developed at CERN.

The software is written in RPL and runs on a DEC PDP-11 at Rutherford, while at CERN it runs on a Digital Equipment Corporation PDP-11. The ground station terminals used at these sites were made by Marconi Communications Systems.

Co-operation between laboratories was already under way in high energy nuclear accelerator research and data was exchanged regularly by sending couriers. Now a full time can be transferred via the satellite in 20 minutes.

## Microsystems 80 attracted 5,500

ATTENDANCE at Microsystems 80 at the end of January was over 5,500, nearly 50% up on the 1979 figure. Visitors came from all parts of Europe, the Middle East and the Americas, and over 30 industries and disciplines were represented.

Microsystems 81 will run from March 11 to 13, 1981, at the Wembley Conference Centre.

# Now. Argus 700 Series 2. Multipower, multispeed, multichoice Multiprocessor.



## Multiprocessor flexibility

Argus 700 Series 2 is based on new versions of the Argus 700 Family central processors which can be used individually or in closely coupled groups supported by a multiprocessor operating system. Putting these together in various ways gives you a performance ratio of 7:1 between the smallest and largest configurations and matches the needs of almost all control, communication and information handling applications.

## Over 2 million instructions per second

This is the typical processing speed at the top end of the range, and from the smallest to the largest configuration you'll get a cost effective system, competitively priced.

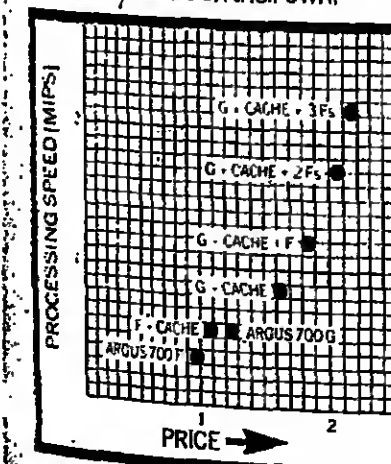
## Local and cache memory speed processing

You can now use a local or cache memory for each Argus 700 CPU in addition to the main memory. Using cache memory reduces the load on the memory bus and can speed up processing by as much as 60%. When the local memory is used to hold a processor's program and data, local operations make no demands on the memory bus at all, leaving it free to handle high speed interprocessor communication.

## Intelligent channels relieve central processors

As well as multiple central processors Series 2 hardware includes intelligent input/output channels which handle all the routine operations. They have access to the memory bus and operate in parallel with central processors. Using

intelligent channels takes a lot of load off the processors. The channels work on chained input/output transfer commands and interrupt the central processor only when the chain is completed. They can trap errors and repeat transfers on their own.



Argus 700—the right choice for dual systems—No one has more experience than Ferranti in designing computer systems for critical tasks like the

control of nuclear power stations and electricity grids, where dual computers with automatic changeover are the best means of ensuring security of operation.

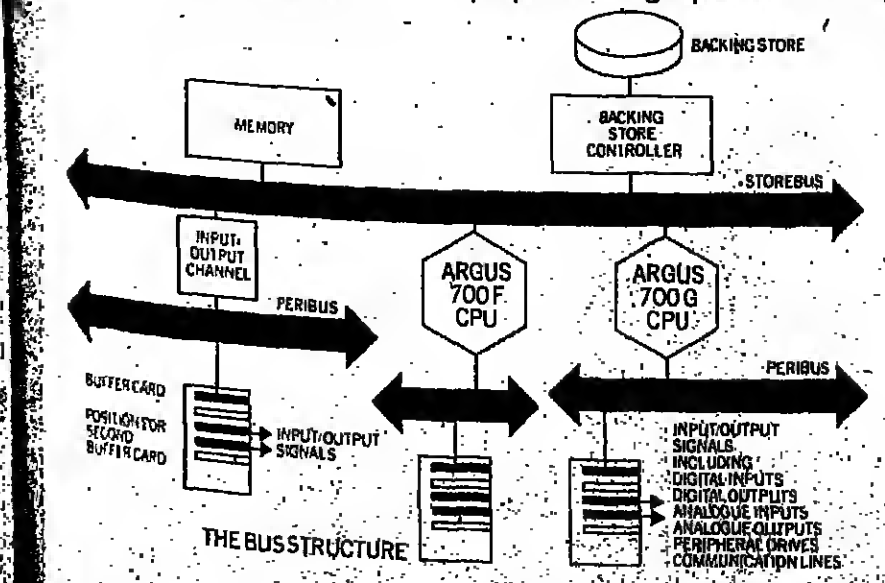
The architecture of Argus 700 Series 2 provides for pairs of computers to share memory and backing stores and to access common input/output drivers. You can either have a master/standby system or divide the load equally between the two computers with the provision that if one fails the other takes over the whole, or critical parts of it.

## All hardware and software is compatible

Everything in the Argus 700 Series 2 range is directly compatible with earlier Argus 700 computers and software so you'll have no problem in updating or expanding existing systems.

## The system builder's computer

Ferranti are essentially systems people with long experience of taking



total responsibility for system design and implementation.

We know the problems. So it's not surprising that Argus 700 Series computers are designed with the solutions in mind and are therefore first choice of so many systems designers.



From the system builders. The system builder's computer.

Please tell me more about multiprocessor operation with Argus 700 Series 2. Post the coupon today to Equipment Sales, Ferranti Computer Systems Limited, Simonway, Wythenshawe, Manchester M22 5LA. Telephone: 061-499 3355. Telex: 668084

Name \_\_\_\_\_  
Position \_\_\_\_\_  
Company \_\_\_\_\_  
Address \_\_\_\_\_

**FERRANTI**  
Computer Systems

MICRO COMPUTERS SOFTWARE			
CP/M	£10	FORTRAN-80	MICROSOFT
INVENTORY	£10	CHASE	WEATHER
ADVENTURE	£20	ROCKET	GALAXY
APOLLO	£10	STARTREK	STARTREK
BLACKJACK	£10	GOLF	GOLF
GENERAL LEADER	£15	SNOPY	SNOPY
		CHASE	CHASE
			£10
DATA BASE	£15		
STARTREK	£30		
INTEL RAM TEST	£10		
MAIL LIST	£45		
ORDER ENTRY	£20		
STOCK CONTROL	£20		
CP/M	£25		

Large scale, commercial programs specially designed for British business are available with back up. Soon we will be introducing Data Link, our new Telecommunications Systems permitting you total access to our massive library.

**HARDWARE AVAILABLE**  
\$100 Computers with 280 CPU complete, ready to run. £4995  
\$100 Oikos System with 218M, 8-inch Disk and 4 Ports and 32KRAM. £1950  
Including 3-day training course

Complete microcomputer repair service at 31, Fife Lane, T.L.T. MICROSYSTEMS (UK) LTD.  
30/31 Fleet Lane, London, E.C4.  
Telephone 010248 8121



# MOST DEALERS DON'T COMPUTE.

Of the 150 dealers who wanted to be associated with the revolutionary Alpha Micro Computer, only fifteen were acceptable.

Only fifteen were willing and able to sell to the end user, get involved in understanding his business, understanding his problems, and offer realistic solutions.

The others wanted to use the fast-buck method of selling within the trade, escalating the price of the Alpha Micro.

As you'll have gathered, that's not for us.

Today our dealers are actively promoting the many advantages of the 16-bit Alpha Micro to businessmen. And many of our dealers have already benefited from the intensive, expensive and worthwhile Alpha training course.

Our dealers (in case you're wondering) are A.S.T., Claisse Allen, C.I.C., Dataaccess Electronics, Health Computing, Lysis Computers, Modern Accounting Services, SSL Computer Systems, Newton Laboratories, Clansman Business Systems, Micro Media (Wales), Roots and Williams Ltd., Source Microcomputers, Beaver Computers and Protechnic.

Fortunately for you, the doors to Alpha Micro are by no means closed to dealers who can fit in with our scheme of things.

And with a computer like the Alpha Micro, you'd be unwise to miss out on the chance of having it on your books.

For the full story, phone 01-250 1616 and ask to speak to Barry Lloyd, our U.K. Dealer Manager. Or write to Alpha House, 13-27 Brunswick Place, London N1 6ED.

## THE ALPHA MICRO COMPUTER





## Centronics expands European operation

**Peter Jowett** has been appointed to take charge of the West Midlands Gas computer services. He has been controller of computer services (designate) for the past five months and was previously the region's 2900 computer manager.

## by Dan

HE'S INSUFFERABLE...



...HIS NEW WRISTWATCH  
SHOWS THE TIME...



... IN OCTAL; THE  
DATE IN HEX...



... AND THE ALARM'S  
SET FOR  
OPENING TIME



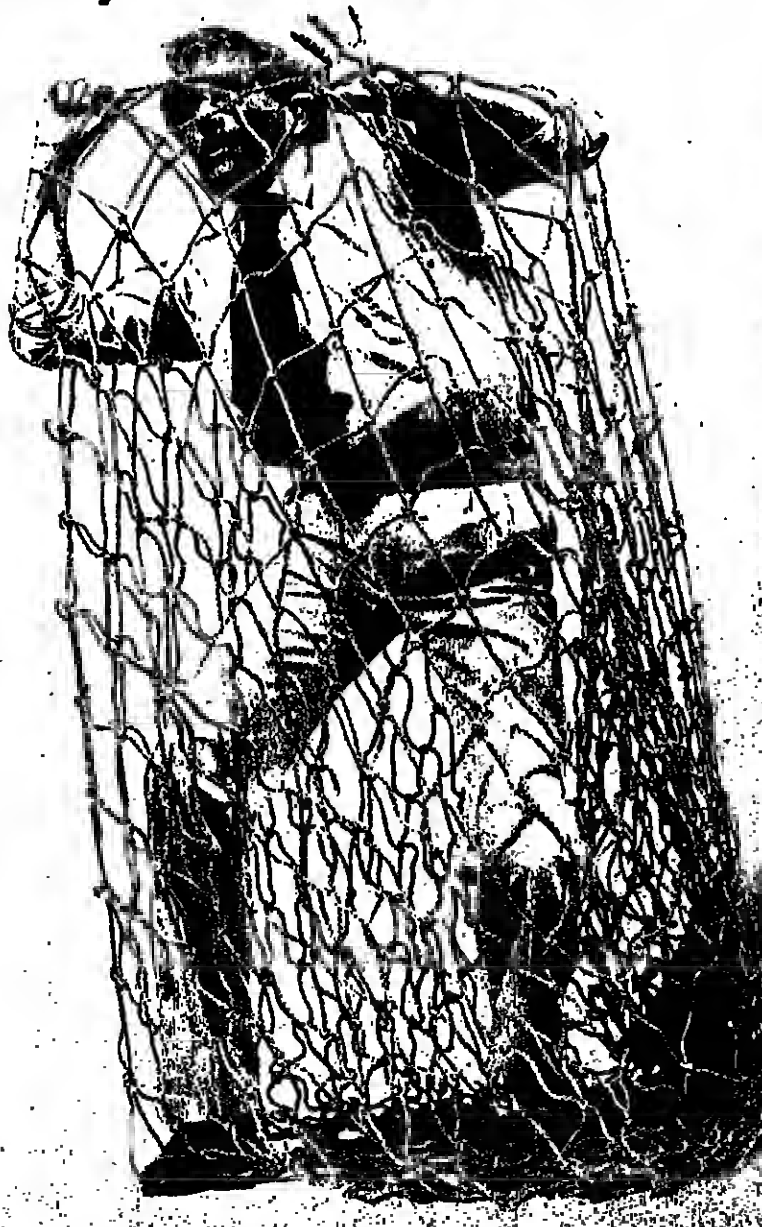
Lloyd Collins, a member of Computer Weekly's display advertising sales team for nearly three years, is leaving to join Rair Terminals as a sales engineer.

**MARCH 31**  
AGM of BCS Fortron special  
group. BCS HQ, 13 Mansfield Street,  
London W1. 10.30. Tel 0533 554  
ext 165.



Age Group	Percentage of respondents
18-29	65
30-49	70
50-69	75
70+	85

**Don't get caught up in an expensive  
multilayered software solution.**



**Howard Osborne** has been communications development manager with Arbat (USA) and was formerly with Tymco as a consultant.

A DoI spokesman said present departments and procedures for developing technology were sufficient.

A spokesman for the Bundespost said there was no reason why approval should not be granted.

**JAIME GORMAN**, Computer Weekly's 12-year-old chess-playing protégé, has been named the youngest player on the U.S. Squad, a group of 14 players up to the age of 18 from which national teams are picked. Jaime was selected because of his improved performance over the last year, which included a placing in the Evening Standard national junior championship.

Jaime played for Kent in the under-14 All-England Championship last week.

His 15-year-old Sophio, has been bitten by the chess bug since being taught to play by Jaime. Last week she helped the Kent under-15 team to victory over Surrey.

AN inquiry service on computer-aided and computer-managed learning has been set up at Imperial College, London, to help teachers at all levels in the education system. The Council for Educational Technology has funded the two-year appointment of an information officer who will answer inquiries and gather information on all sorts of applications of computers in education and training.

The service is based on Imperial College's CEDAR Project (Computers in Education as a Resource) which maintains a library of books and reports on the subject, and has an online catalogue of these publications with available CAL pickings. The catalogue is published on microfiche.

The newly-appointed information officer is Judith Morris. Inquiries should be directed to 01-589 5111 ext 1180 or 1197.

## Adam and Tina go nationwide

ADAM and Tina, the operator-programmable systems produced by the Logical Machine Corp, are to be available around the country in a number of new business centres being opened by Baam.

The company already has centres in Manchester and Cheltenham, and more are planned for later this year. In addition to the Lomac systems

Beam is the office equipment division of UAC International Group, which is part of United

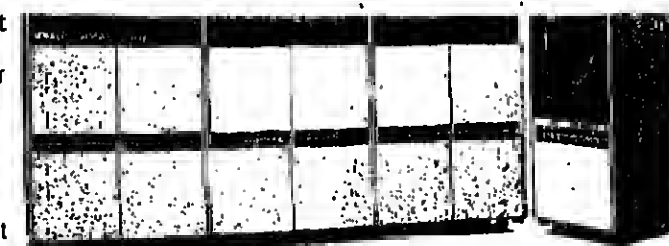
### Teletext broadcasts

THE Australian government has decided to allow teletext broadcasts, and some will begin soon. Local manufacturers are expected to produce plug-in adapters and suitably modified televisions within three to six months. Other systems and developments, including interactive services, may be given final trials by the Postal and Telecommunications Department and Industry.



# Evaluate a system-10 or-20.

**Ready to interact at once.  
Ready to deliver now.**



Already at work in hundreds of applications worldwide. Available now in a wide choice of performance ranges.

Made by the No 1 in interactive computing. Put us on your shortlist. Otherwise, you haven't made a true evaluation.

Better still, call us. You won't get any promises, spoken or written. Instead you'll receive an invitation to an immediate, comprehensive demo. No surprises - except the good ones.

Like: easy-to-use software. The hard and fast delivery date we can give you. The price. And how soon a DECsystem can be amortising your investment! Ask any user.

Digital, I'd like a clear picture of how soon and how well a DECsystem could be working for me.

My application is: \_\_\_\_\_  
Name: \_\_\_\_\_  
Company address: \_\_\_\_\_  
Tel.: \_\_\_\_\_

Send to: Terry Clarke  
Digital Equipment Co. Limited  
Digital House, Kings Road, Reading RG1 4HS

[illegible]

ital

1 2 3 4 5 6 7 8 9 10 11 12

## Active computing

digital

No.1 in interactive computing



"How many of your employees are aged 30-40, speak Spanish and have a Scottish grandmother"?

### To questions like these and other more crucial enquiries - CAFS 800 gives ICL 2956 and 2960 users an instant answer.

Are your users becoming more and more frustrated because they want answers in seconds to complex questions? Urgent questions on products, customers, parts, personnel or documents, for instance. Conventional file searching packages can provide answers, but not at the speed that today's pressurised management needs.

Next question: "Can ICL provide a solution?" The answer is Yes, with CAFS 800, ICL's unique hardware-assisted information retrieval system. Not only does it provide instant answers to end users on video terminals, but it also frees your DP staff from tedious maintenance programming and reduces the load on your mainframe computer.

#### More Questions?

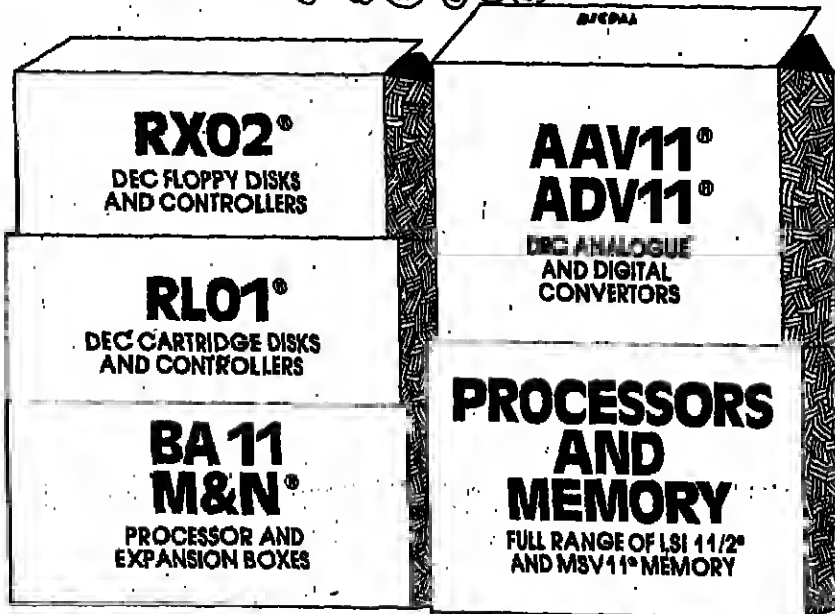
Why not come along to one of our regional seminars on CAFS 800 being held during March. Your questions will be answered and you'll have the opportunity of seeing CAFS 800 in action. The seminars will be held from 10.30 to 15.30 as follows:

21/3/80 London  
25/3/80 Birmingham  
28/3/80 Manchester  
31/3/80 Bristol

For your invitation, phone ICL on 01-387 7030 and ask for Pauline Hughes (extension 204) or Janet Greig or Alwyn Dawson (extension 218), and see just how profitable it can be to be fully informed.

ICL CAFS  
QUALITY INFORMATION  
800

INSTOCK NOW!



From DICO

AT ATTRACTIVE PRICES  
COMPLETE SYSTEMS BASED ON THE ABOVE  
ARE AVAILABLE ON SHORT DELIVERY

DICO  
BASINGSTOKE

DICO LIMITED, 111 SOUTHAMPTON ROAD, BASINGSTOKE, HANTS RG24 0JH  
TELEPHONE: 0256 511111, 511112, 511113, 511114, 511115, 511116, 511117, 511118, 511119, 511120, 511121, 511122, 511123, 511124, 511125, 511126, 511127, 511128, 511129, 511130, 511131, 511132, 511133, 511134, 511135, 511136, 511137, 511138, 511139, 511140, 511141, 511142, 511143, 511144, 511145, 511146, 511147, 511148, 511149, 511150, 511151, 511152, 511153, 511154, 511155, 511156, 511157, 511158, 511159, 511160, 511161, 511162, 511163, 511164, 511165, 511166, 511167, 511168, 511169, 511170, 511171, 511172, 511173, 511174, 511175, 511176, 511177, 511178, 511179, 511180, 511181, 511182, 511183, 511184, 511185, 511186, 511187, 511188, 511189, 511190, 511191, 511192, 511193, 511194, 511195, 511196, 511197, 511198, 511199, 511200

CHRIS YOUETT EXAMINES THE NEW IDPM SYLLABUS

## Accent on practical side of DP

DO you know the pros and cons of using an overhead projector for explaining a new system to a bunch of confused users? Can you advise on drawing up shifts for the ops room or drafting recruitment advertisements for Computer Weekly?

This is the type of topic that the Institute of Data Processing Management covers in its new examination syllabus to emphasise its belief in itself as the practical institution for the computer professional.

Formed following the amalgamation of the Institute of Data Processing and the Data Processing Management Association in 1978 (CW, April 8, 1978), the institute sees itself as bringing together the managerial orientation of the DPMA and the educational and professional orientation of the IDP.

It has set itself a target of 10,000 new members and, to help with this, the institute has produced a loose-leaf booklet for prospective members and students which also includes an application form and a reply-paid envelope.

The booklet sets out the principal objectives of the institute, which are to advance the interests of the DP professional and its members, to set standards for the professional and to confer recognition upon those practitioners who meet the standards.

It has already become a pressure group from government level downwards for the industry and its members. It is pushing its views hard at the variety of seminars and conferences which are springing up all over the country.

The institute publishes occasional reports and participates in the work of private and public committees, study groups and investigations.

There are five grades of membership: full Member, which requires a minimum of eight years' experience and one year's associate membership; Associate, which requires a minimum of four years' experience; Licentiate, which is awarded to applicants with under four years' experience and with certain approved professional qualifications; Individual Affiliate, which is available to any computer user and others who wish to support the institute; and Corporate Affiliate, which is available to any corporate body, such as local authorities and firms.

Students registered for the institute's exams need not be members but, if they wish to join, may qualify for an affiliate or professional grade, according to experience.

The exam is set in four parts: Higher National Certificate level. An HNC is accepted as equal to a degree by many employers, and usually covers the first two years of a degree course.

The minimum level of entry is four GCE O-Levels or their equivalent or an equivalent level of ability. So there is little reason why even a trainee operator or punch girl should not apply.

Many of the senior members of the institute emphasise that the word "management" in its title is misleading, as most people in the industry have some management responsibility and

may even be in charge of more people or equipment than many traditional managers are.

Exemptions are available for holders of GCE A-Levels, ONDs, ONCs, degrees, the National Computing Centre's Basic Award Part I of the British Computer Society examination. Most people I have talked to in the institute do not see the BCS



CLUFF: "Exciting time to join..."

as a rival, but as a complementary organisation with a slightly different job to do.

The syllabus sets out to test the candidate's knowledge of both technical and administrative subjects and Part I comprises principles of accounts, computer technology and business equipment; Part II comprises basic statistics, data processing techniques and business communications; Part III comprises systems analysis, programming methods and techniques, scheduling and timing and control of systems development; and Part IV comprises system design management and data processing.

His view of developing support among the branches who are keen not to see the institute go the way of others in the UK or become London club. Ross is also keen to see people from all walks of industry join.

The two biggest problems facing the embryo branches are finding venues with a car and finding speakers in the hard work.

## DIGICO COMPUTERS

the best scientific and industrial system!

For 14 years DIGICO has installed advanced scientific and industrial computer systems - even in the U.S.A. Installations vary from "control loop systems" to "all absolutely program and data compatible with a full range of scientific and industrial interfaces."

- |                                   |  |
|-----------------------------------|--|
| Single and multi terminal systems | <input type="checkbox"/> Medical instrumentation     |
| Process control                   | <input type="checkbox"/> Networking                  |
| Data logging                      | <input type="checkbox"/> Multi terminal data systems |
| Mathematical simulation           | <input type="checkbox"/> Remote terminal emulation   |
| Geophysical instrumentation       | <input type="checkbox"/> Intelligent terminals       |
| Form and processing               | <input type="checkbox"/> Teaching systems            |

High level or low level languages, interpreters or compilers, fully developed "package" systems, number crunchers, data loggers, factory controlled or just data processors - test our products against any competitor and measure the results yourself. Furthermore they are designed and manufactured right here in Britain - in your own country.

Tick any of the above applications, forward it to us and we'll send you an in depth installation dossier free of charge.

Digico Limited, 111 Southamptn Road, Basingstoke, Hants RG24 0JH  
Telephone: 0256 511111, 511112, 511113, 511114, 511115, 511116, 511117, 511118, 511119, 511120, 511121, 511122, 511123, 511124, 511125, 511126, 511127, 511128, 511129, 511130, 511131, 511132, 511133, 511134, 511135, 511136, 511137, 511138, 511139, 511140, 511141, 511142, 511143, 511144, 511145, 511146, 511147, 511148, 511149, 511150, 511151, 511152, 511153, 511154, 511155, 511156, 511157, 511158, 511159, 511160, 511161, 511162, 511163, 511164, 511165, 511166, 511167, 511168, 511169, 511170, 511171, 511172, 511173, 511174, 511175, 511176, 511177, 511178, 511179, 511180, 511181, 511182, 511183, 511184, 511185, 511186, 511187, 511188, 511189, 511190, 511191, 511192, 511193, 511194, 511195, 511196, 511197, 511198, 511199, 511200

start small and grow large with digico

TIM PALMER  
FOLLOWS THE  
TRAVELLING  
COMPUTERMARKET  
SHOW TO  
BIRMINGHAM

## Package approach from NSC

NORTHERN Software Consultants of Manchester has entered the hardware business with a system built around the Cromemco 280-based processor. It comes with Beehive terminal, Centronics printer and two Cromemco floppy disc units, and NSC chose Computermarket in Birmingham at which to launch it.

Purpose of the machine is to get more mileage out of NSC's accounting software; users will get a basic system including purchase, sales and nominal ledger packages for about £10,000. Word processing software is also available.

NSC offers a maintenance contract on the hardware, and sees benefits in being able to provide a complete pre-tested hardware-software system which can be guaranteed operational. It also expects the class of user at which it is aimed to be prepared to put up with the occasional inconsistency in output and to alter it by hand, since such things are likely to occur only infrequently. Large users with major runs are much more likely to want comprehensive support, NSC believes. It also sees a packaged approach as the only means of serving the bottom end of the market cost-effectively.

NSC has appeared at exhibitions for several years, and reported that there had been a big increase in the number of inquiries now that it was showing a hardware product.

## Selling software at an exhibition

CAN you sell software at an exhibition? Three companies which have found exhibition stands beneficial are Peterborough Data, Q-Pac Services and Northern Software Consultants, NSC. All took space at the small but busy Computermarket in Birmingham last week, and all were broadly satisfied with the results, although NSC was exhibiting hardware for the first time.

"We haven't been rushed off our feet with inquiries," said Peterborough Data's Joe Franks, "but we are regulars at Computermarket, and regard it as an effective way of showing the flag. We tend to meet our existing customers, and other visitors, although allowing only a passing interest to start with, often turn into useful prospects."

Formed 17 years ago, and still a private company under unchanged ownership, Peterborough Data Processing Services claims to be number one in Western Europe in the personnel administration field. As a

private company, it is not obliged to reveal turnover and profit figures, but does annual business in excess of £2 million, employs 130 people, over 100 of them DP professionals taken on after a minimum of three years' experience, and has over 400 customers for its systems, several of them bureaux serving many users.

It is big enough to have its own ICL 2904 and IBM 370/115, the latter to be replaced with a 4331 in June. It also has an IBM Office System 8 word processor for preparing documentation. Its three principal products are Unipay, Unipension and Unipersonnel, described respectively as the payroll, pension and personnel "problem solver."

The software is written in IBM assembler or ICL Plan, but there are new versions for ICL VME/B and VME/K users written in Cobol; the VME/B version is in use, and the VME/K version is under test. Univac and Data General versions are also

available and Honeywell versions are being developed.

Peterborough Data declines to talk prices, but aims to provide a complete service, including installing a turnkey system if required. It also provides training and aims to keep customers up to date on fiscal and pension legislation.

About 20 bureaux use the Unipay payroll service, but it is being dropped by the Post Office's National Dtn Processing Service on the grounds that too many others offer it (CW, January 31).

The Post Office's alternative is to offer a payroll system on a Casu Super C microcomputer, and Peterborough Data is considering its approach for the small computer market.

"We have gone down into minicomputers, but a microcomputer system would be difficult to cost-justify, because we want to provide all our users with a full service," said Joe Franks.

## Punchy system launched at show

LATEST addition to Computer Ancillaries' Mael product line in the UK is the Mael 5100, launched at Computermarket in Birmingham last week.

The 5100 is a repackaged low-cost desk-top version of the Mael 5300, and since it is built around the same General Automation GA 16/220 processor, it packs a lot of punch for such a small system. Packaging is the same as for the Mael 2000, with built-in display, keyboard and two or four floppy disc drives in the desk-top unit. Printers running at 120 or 180 cps are offered with it, and the floppy discs are double-sided double-density drives from Persci, storing 2.7 megabytes per dual drive.

The basic system costs £9,700, with application software extra. A suite of accounting programs would add about £5,000 to the price. CAL is also specialising in software for insurance brokers, making the Mael 5100 particularly attractive for small broking firms and partnerships.

Languages available are unusually comprehensive Com-

mercial Fortran, in which CAL writes all its software. Commercial Basic, Fortran IV, Cobol, Pascal, and an RPG. It claimed to be 100% IBM-compatible.

## When and where to see it

COMPUTERMARKET left Birmingham for Manchester this week - it has its last day today (Thursday) at New Century Hall, Corporation Street. Next week it is in Glasgow at the Albany Hotel, Bothwell Street, from March 18 to 20 and it ends up at London's West Centre Hotel, Little Road, SW6, on March 25 to 27.

A competition to find the computer advertisement of the year is being held with the exhibition. The proceeds are going to the British Computer Society's Specialist Group for the Disabled. Judging will be in London on March 25.

## TR PDX - the digital communications switch for the electronic office



Today the Telephone Rentals Private Digital Exchange (TR PDX) is providing a telephone communications system, with many operational and cost advantages, for a number of "household name" UK organisations. It is an electronic, computer controlled, digital exchange with all the benefits of Stored Programme Control (SPC), Pulse Code Modulation (PCM) and Time Division Multiplexing (TDM). It is the first British built digital exchange to bring all these principles together and the first to obtain Post Office approval.

Not only is the TR PDX operating beneficially as a PABX but it will be available as a Tandem, Sub-Tandem, Main or Satellite system for private networks. But clearly the technology of the TR PDX will provide the digital switch essential to operating the integrated business communications and data systems of tomorrow's electronic office. Certainly for the remainder of this century.

So as a DP Manager you'll want to know more about it. If you telephone Telephone Rentals at Milton Keynes (0908 71200) and speak to Jim Brokenbrow or Peter Danby on our own PDX, we'll be glad to let you have more information. Even arrange a Presatation.

TR PDX

NOW POST OFFICE APPROVED

See it on Stand 28 20 Hall 2 COMMUNICATIONS 80

Telephone Rentals Ltd.

TR House, Blitchley, Milton Keynes MK9 3JL. Telephone: 0908 71200.

Telephone Rentals

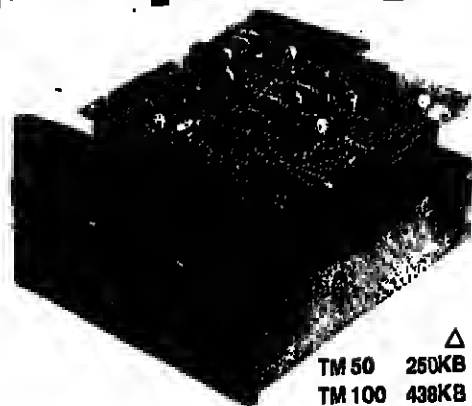
British Computer Society



## OEM Disk Drives with full support package

5 1/4" Diskette Drives from Tandon ►  
Magnetics, the head specialists.

Industry Standard, very quiet operation ►  
Band positioning for 5 ms I+ access ►  
Unique head loading ►  
Rapid start/stop time - 250 ms ►



TM 50 250KB  
TM 100 438KB

► The IMI 8" Winchester - 11.3 MB  
available with controller and PSU

Just write or phone for details of OEM package

### comart

Comart Disk Division  
PO Box 2, St Neots, Huntingdon, Cambs.  
Tel: (0480) 215005 Telex: 32514

## One false step - you're down a mineshaft

Fintel means...

the full range of viewdata services

No false steps.

Stuck. Your way blocked. No route through. In viewdata jargon, down a mineshaft. That's where you could be if you venture alone into the increasingly complex world of videotex. Prestel, viewdata.

Fintel is the centre of excellence in viewdata. Its expertise in viewdata economics, marketing and production will make the new medium work for you.

Fintel is already doing this for clients such as American Express, Bank Leumi, BICC, Cable & Wireless, Granada, Harlow Centre, INSAC, Logica, Société Générale de Banque/Banque Belge and Sabre Selection, and is a leader in the international development of electronic publishing.

Don't take that false step. Find out about Fintel's full range of viewdata services.

### Fintel Limited

1 Pudding Lane, London, EC3R 9AA Tel. 01-826 7432

Fintel - jointly owned by the Financial Times and Eitel - the leading business information provider on Prestel - the viewdata professionals.

To: Alan Jones or David Leahy, Fintel Limited 1 Pudding Lane London EC3R 9AA.

Please let me know: Fintel's full range of viewdata services can be seen out of the mineshaft.

Name \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

Tel. No. \_\_\_\_\_

## NICHOLAS ENTICKNAP LOOKS AT

# Marketing of fast page printer not tough enough

FAST page printers have been a feature of exhibitions and the subject of a substantial promotional and marketing effort for about two years now. With a view to seeing how far the proclaimed potential is being realised, I visited the first UK user of the Honeywell Page Printing System (PPS), EMI at Hayes, Middlesex.

Surprisingly, the message from EMI is that the product is being very much undersold — not something that the computer industry is accused of very often. According to group computer services general manager Roy Gray, "The marketing done by the manufacturers is nothing like as sharp as it should be."

A lot of comparisons are made between the cost of a page printer and a line printer, and between the relative costs of paper. But the manufacturers are looking at the equipment with blinkers on; they're ignoring the labour and overtime saving benefits, not to mention the saving on expensive engineering cover.

His colleague, Jim de Voll, operational services manager, goes further. "In the past 10 years there's not been much progress, but this system represents a revolution on the output side. People are not generally aware of the potential."

To be fair, the manufacturers have a point: trying to sell anything on the basis of its potential is notoriously difficult, if only because DP managers have to

convince their own management in terms of costs.

And EMI has a story to tell here too. In round cash, Gray estimates the net benefit as "in excess of £50,000 a year." This comes about from the saving of six people (one operator on each of three shifts and three paper-handling staff) and of two line printers, plus a variety of other smaller savings.

Savings of this kind are well worth making, but Gray feels they are insignificant in comparison with the new and more timely services it enables him to offer his users. As many of these stem from the basic design of the system, it is useful to give some details of the PPS.

The Honeywell PPS is an electrostatic matrix printer; as such it differs from other fast printers like the IBM 3800 and the Siemens ND2, which have a printing method similar to xerography but employing a laser to expose the photosensitive film. The use of electrostatic technology is cheaper, but means that the PPS requires special electrically sensitive paper.

Both types of system operate at similar speeds, which vary according to a number of factors. Because of this, IBM does not quote rated speeds. Honeywell sells three versions of the PPS; EMI has the medium-speed one, which is rated at 12,000 lpm or 140 pages a minute.

An important aspect of the PPS is its firms-handling capabilities. The system uses a

continuous roll of paper which is pulled through the system, sprocket holes are necessary.

As a result, no trimming is required, and neither is burning or decollating. The paper is to the length required by the user and multiple copies of the report are attached in different hoppers under software control.

EMI produces its reports in size. The fact that reports produced on the system are the same size as those produced on conventional typewriters has proved important in gaining user acceptance, paving the way to new applications.

For example, EMI executives are turning more and more to the printing system for the production of board reports, sales and marketing letters, Accountants are using it for consolidations.

These applications present considerable saving in system time, as well as a reduction in the time it takes to bring a report to the board. They also make for savings on the photocopying bill. It costs around 1p to produce a photocopy of a report, compared with 1p on the PPS.

Another new application is the production of telephone directories which, in offices, are notoriously out of date the moment they are produced. The PPS can produce absolutely up-to-date

• Turn to page 17

## HONEYWELL'S HIGH SPEED PPS SYSTEM IN ACTION

High speed page printers have been the star turn of many a computer exhibition over the last two years and some users have taken the plunge in installing one.

Nicholas Enticknap, as part of Computer Weekly's Systems in Action series, reports on EMI, the first UK user of Honeywell's Page Printing System (PPS).

Surprisingly, EMI said that the system was being undersold. Many manufacturers appear to be judging such systems on a straight cost comparison with line printers and the cost of paper, and ignoring the hidden benefits of cutting labour costs and maintenance.

Enticknap found that, now EMI has got the system working efficiently, it is in a position to offer time on it to customers outside the group.

• From page 16

copies on demand, but can also produce selective directories, covering for example all the people in one building; this leads to more savings.

Telephone directories are usually produced by internal printing departments, and Roy Gray feels that many other such tasks will eventually be taken over by the PPS.

The quality of the output, and in particular the system's ability to print lower as well as upper case, also permits the development of word processing applications. Gray quotes as an example of the applications he would like to develop the printing of personalised payment overdue letters, which gives precise details of payments history and the amount outstanding. Another example is personalised mailing shots, which could refer, for example, to specific purchases the customer had made.

Cost savings not yet covered include an important saving on pre-printed stationery. This is not required for the PPS, as the same effect can be achieved with a forms overlay.

With conventional line printers, EMI was holding stocks worth about £100,000, so the saving here is in the region of £15,000 alone on interest charges.

Apart from the cost, it saves the worry that a supplier might let you down with a late delivery, or that you don't have sufficient stock to do a re-run. There is also a hidden saving in that, in the nature of things, a lot of pre-printed stationery tends to get thrown away because of organisational changes.

EMI installed the PPS in November 1978 when, as mentioned, it was the first of its type in the UK. A three-month development period followed, during which EMI was ensuring that the system was both reliable and maintainable, and Honeywell's engineers were getting used to the system.

It was expected that the special paper might be a source of problems, but this fear proved to be unfounded. Current experience is that one roll in a thousand is slightly suspect, which is a better average than three-part paper gives.

This is partly because the company takes all due precautions. The rolls of paper are removed from the store to the before they are due to be used, stationery store is itself air-conditioned, but EMI nonetheless makes a point of doing it. The main snag with the paper

is that it has to be imported from North America, as it is currently available to Honeywell's specification only from two suppliers, Crown-Zellerbach of Oregon and Nashua of Canada. Next year, however, it is expected that it will become available from a number of European suppliers.

The paper handling equipment has been similarly satisfactory; only teething troubles were experienced, due to a couple of minor technical problems which have since been eliminated.

Another potential worry was the serviceability of the PPS. In check on this, Gray made inquiries in the US, which showed that the results the pioneer American users had achieved were quite satisfactory.

Overall availability has in fact exceeded EMI's expectations. Gray says that although MTBF is a meaningful measure, the best way of estimating this is in terms of how often a fault recurs before it is finally cured.

"Initially there were many — this was because the engineers hadn't got to know the system, and therefore often failed to recognise when it was necessary to put in a replacement part. But now we go a couple of months without a fault."

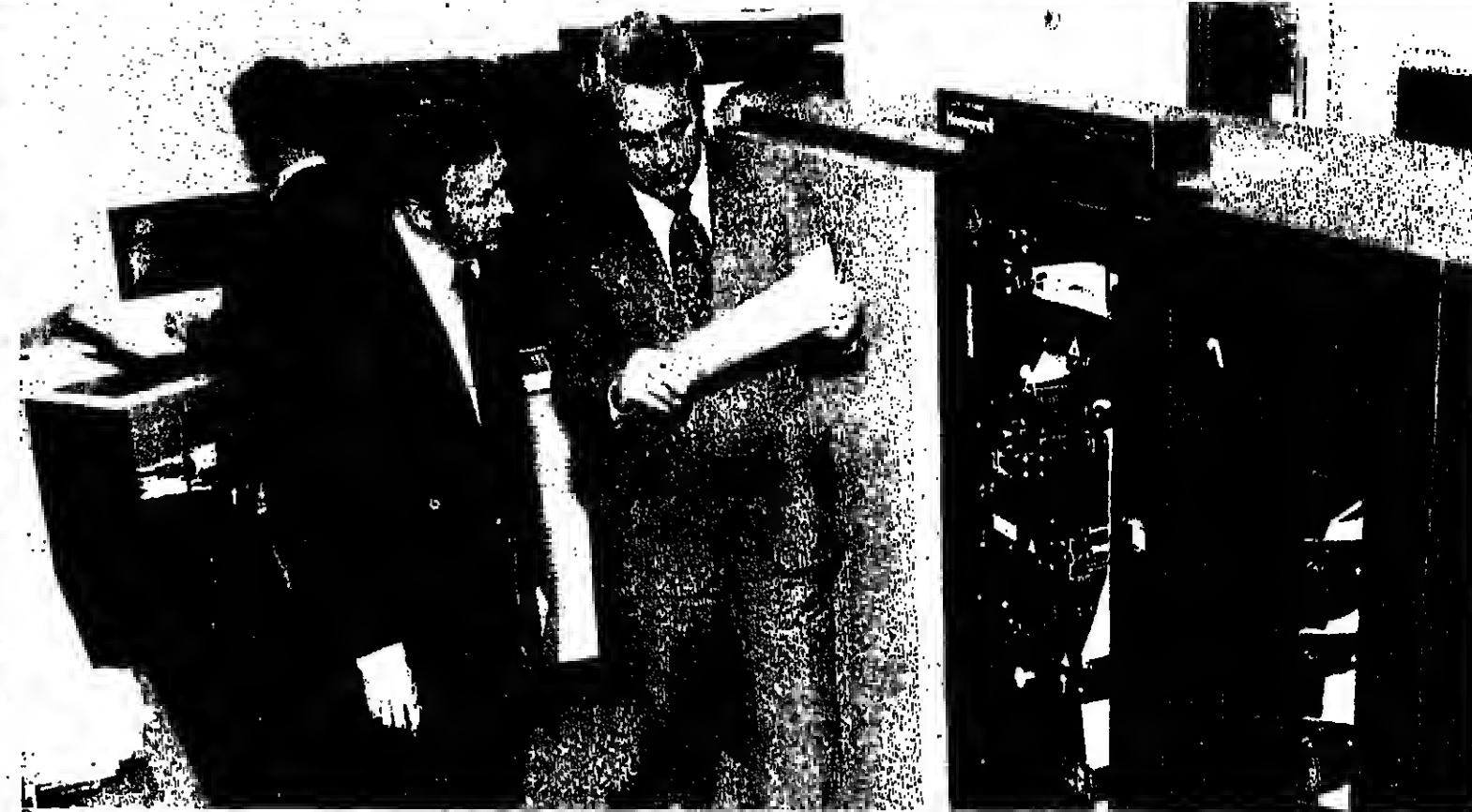
This reliability was put firmly to the test in August, when for a variety of reasons the workload was exceptionally high. Just how high can be seen from the figures — EMI's original plan was to work up to a throughput of 1.25 million pages a month over a two-year period; but in August, only six months after production work started, the PPS produced two million pages.

Another indication is that, as part of a general move by EMI into the bureau business with a range of different services, the company is now marketing a PPS service to customers outside the group.

For the future, EMI's sights are set on an upgrade to the PPS 2 system, which is more advanced in several respects.

The most important of these is that instead of the non-programmable minicomputer controlling the PPS 1, it is equipped with a 8/43 mini, running under GCOS 8 Mod 400, which can be programmed by the user. This allows much more scope with the use of different typefaces on the same document.

The current system has a list price rental of about £8,000 a month, including options and maintenance. To this must be added a metered footage charge for paper use, which starts at £1.75 per thousand feet for the first half million feet.



A PPS feature which has proved attractive to EMI managers is the ability to produce normal A4 sized reports. Our picture shows Roy Gray (right) examining some reports with Jim de Voll.

## HP introduces the Matrix Machine.

If you've been thinking that only a 32-bit computer can handle your matrix intensive jobs, think about this with HP's new Vector Instruction Set (VIS), the HP 1000 does matrix inversions at speeds comparable to a 32-bit mini. At less than one-third the price.

The HP 1000 F-series computer has always been ideal for complex scientific calculations involving floating point arithmetic, trigonometric and logarithmic functions, and other computation-intensive problems. Now it's even better.

With VIS, you can perform vector and matrix arithmetic at speeds you wouldn't have thought possible on a 16-bit computer. A single vector addition statement like CALL, VAID, for example, replaces a FORTRAN DO loop to execute some applications up to 10 times faster.

And by taking advantage of the HP 1000's Extended Memory Area, VIS can address extremely large data sets (up to 1.8 megabytes) in main memory. All array and memory management tasks

are handled automatically, so you can do large array applications like image processing, 3-dimensional graphics, and simulations. Without writing any new software.

### Speed plus accuracy equals performance.

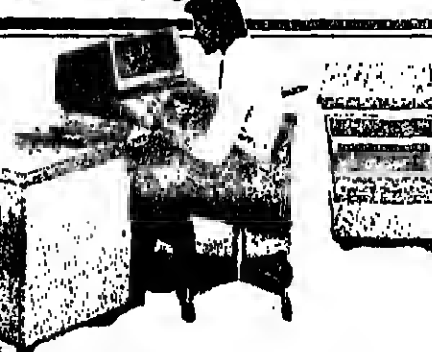
Even if you're just crunching numbers and not matrices, the F-series has what it takes to handle the most sophisticated computations.

A hardware-implemented Floating Point Processor gives you three levels of floating point precision for up to 17 significant digits of accuracy. And separate polynomial and scientific instruction sets make it easy to do highly accurate calculations involving a wide range of trigonometric, logarithmic and other complex functions — all at hardware speed.

### Crunch a matrix today.

Invest a little time to find out how the HP 1000 sixteen-bit computer makes light work of matrix arithmetic. At £27,800\* it might save you from investing more money than you need to for your sophisticated

\*Prices correct at time of going to press.



computation jobs.

For complete information about the VIS-enhanced HP 1000 ring your nearest Hewlett-Packard office or contact Hewlett-Packard Ltd., King Street Lane, Wetherby, Wokingham, Berks, RG11 5AR. Telephone: Wokingham (0734) 784771.

Matrix Inversion Times**			
	HP 1000 F-series	32-bit Mini-computer	
Size	1.8 sec	1.5 sec	
50x50	12.3 sec	11.7 sec	
100x100	105 sec	92 sec	
200x200	650 sec	720 sec	

\*\* Benchmark method - Matrix inversion using Gauss-Jordan Elimination.

HEWLETT PACKARD



NEW HP PASCAL: Pascal/1000 gives you easy-to-use structured programming with full HP support.

## Wilkes Computing

### LSI Systems

- PDP 11/03 Systems
- 64 KB Memory
- RX02 Dual drive floppy or 2 x RL01 5MB disks
- RT11 Software licence Macro, Fortran IV, Basic, API
- Optional RT11 Multi-user operating system.
- Discounts available for volume orders.



### we have terminals

from **Qume**  
LA 34 LA 180  
LA 120 VT 100

from **Qume**  
55 cpa KSR and RO daisywheel printers

from **NEWBURY**

from **TEXAS INSTRUMENTS**  
Shen 700 portable  
TI 820 KSR and RO  
TI 825 KSR and RO  
and from  
TeleVideo  
DataMedia  
TELETYPE

### we deliver within 8 weeks any system

### phone us now and ask for Sales Desk. Supplies are limited.

### LSI Modules ready for delivery

KD11 TU88  
KEV11 DL11E  
MRV11 DB11  
DLV11 TEV11  
DZV11 REV11  
RXV21 MSV11

Wilkes Computing Tel: Bristol (0272) 25921 Telex 44020



## KEITH JONES LOOKS AT THE NORWEGIAN DP FLAGSHIP

# Ad hoc marketing plan pays off at Norsk Data

NORSK Data is the flagship of the Norwegian computer industry. With a turnover of £19 million last year and an order backlog at more than £10 million at the end of 1979 the company would be considered significant even in the UK.

In Norway Norsk Data's relative importance is almost as great as ICL's in this country.

Nevertheless Norsk Data is still small enough for the markets which it addresses to be determined by the interests and abilities of individual employees

and by opportunities as they arise.

No overall marketing strategy appears to have been drawn up yet to attack specific market areas and the most significant development seems to be the build-up of commercial type customers in Scandinavia using the Norsk Data transaction processing system, TPS, or typesetting software, Nordtext.

Moreover, Norsk Data claims that its Sibus database system is the most common system of its

kind now in use in Norway and Sweden.

In the UK the powerful interactive capabilities of Norsk Data's Nord machines, with the wide variety of languages that can be supported by the versatile Sintran III/VS operating system, are starting to win university orders.

The first major contract was placed in February by Reading University for kit that included two 18-bit Nord-100 minicomputers and one 32-bit Nord-500. The 100 and powerful 500 were

announced in 1979, and superseded all earlier Nord machines.

But Norsk Data's biggest contract by far in the UK to date was placed last year by the Joint European Torus nuclear fusion project at Culham Laboratory in Oxfordshire.

It was added to the list of rather exotic and diverse scientific and technical type applications for Norsk machines that characterised the history of Norsk Data throughout the 1970s.

In the sense of being a nuclear project, JET is loosely related to the synchrotron project at CERN, the European Organisation for Nuclear Research at Geneva, which is probably the best known application area to date for Norsk minicomputers.

From an original 24 Nord-10 minicomputers ordered about seven years ago, the line-up of Norsk Data kit at CERN has grown to a formidable 120 machines.

The chances of picking up substantial new contracts in an area as limited as nuclear research are obviously not very great, and Norsk Data also sees no great potential in aircraft simulation, an application with which it became involved through an \$8 million contract placed two years ago by the US firm Singer-Link.

Norsk machines are to be used by Singer-Link to control simulators that Singer is building for the F16 fighter, but Norsk Data admits that its success against US based competitors, notably Systems Engineering Laboratories, was helped by the US government's desire to offset the cost to Europa of buying large numbers of F16s. Norway alone is buying 70.

Nevertheless, Norsk Data still had to "sell" its machines to Singer-Link's own programming staff who were not used to working with what, to them, was an obscure European computer manufacturer.

Winning the Singer-Link order gave Norsk Data a foothold in the US market, an achievement seen by the company as helping its business in Europe. There are now Norsk Data offices in Boston and in Dallas, Texas, the latter being the office handling the Singer-Link contract.

Because of Norway's geographical remoteness from most of its major foreign markets, Norsk Data's strategy is to use its subsidiaries to develop applications autonomously to local requirements and to agreements with local contractors.

Activities at Norsk Data Oslo headquarters include development of a replacement for the Sintran III operating system. It will be called, possibly, Sintran IV and will incorporate Sintran III as a subsystem, so achieving upwards compatibility.

Norsk Data hopes that the most important new development provided by Sintran IV will be the support of genuine distributed processing so that several Nord machines can be linked and files on all of them accessed by an application program running on any of the machines.

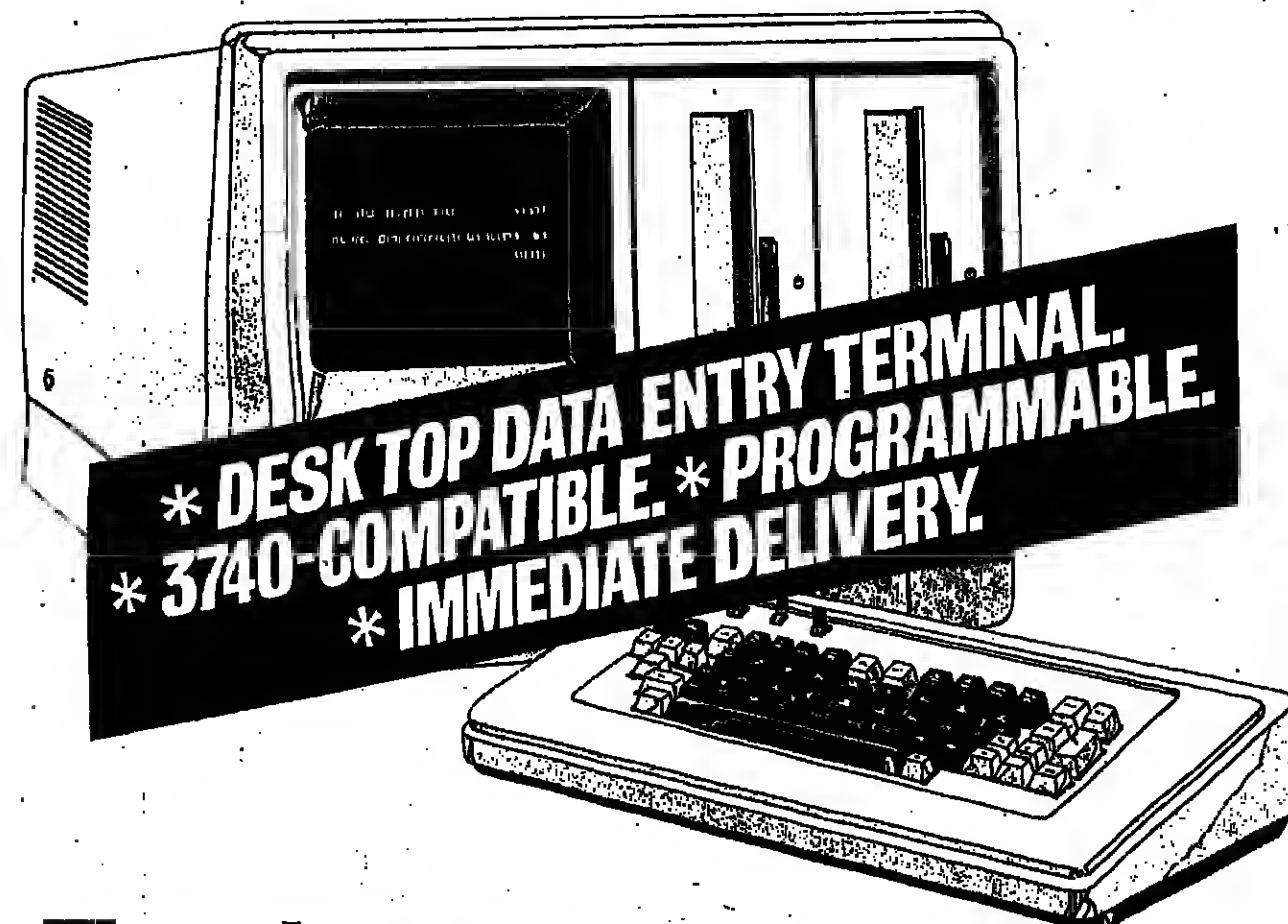
Norsk Data does not expect to announce significant changes to its hardware about another three years, although improvements made, aimed at improving the performance of Sintran.

With the 32-bit Nord-100 Norsk Data already has a machine rated at more than 1 million instructions per second. It provides up to 64 megawords of main memory and comes with a cache accessible up to 64K bytes. The Nord-100 is based on the ubiquitous AMD 2800 bit-slice chip family and can operate either in stand-alone mode or as a front end to the 500, k machines sharing the memory.

Norsk Data says that it sold 30 Nord-500s to date and that deliveries will begin this year.



Though Norsk Data sees little future in aircraft applications, it did win an \$8 million contract two years ago by the US firm Singer-Link to supply Nord machines that will control simulators for the General Dynamics fighter, pictured above.



## There's only one place to get it and funnily enough it's not IBM.

IBM don't have an intelligent data entry terminal offering Business BASIC available now, even the new 5280.

But ITT do. In fact we've got a range of intelligent data entry terminals including fully 3740-compatible single and dual units. So not only can you input high volume data, but the ITT 3450 can also be used for your local processing requirements.

What's more, they're ready for immediate delivery. You don't have to wait to take advantage of all the improvements and extra features that the ITT 3450 includes: 64K RAM, LSI technology reliability and, of course, our exclusive feature - Business BASIC.

The cost of all this? Less than you'd think, thanks to ITT's competitive rental facilities. And, as with all ITT Business Systems products, the 3450 is backed by a full nationwide sales and service organisation.

The ITT 3450 range. Post the coupon today to find out more.

Ring 0273-507111 or send to - Sales Information Section, ITT Business Systems, Lion Buildings, Crowhurst Road, Hollingbury, Brighton, BN1 8AN (Telex 87169).

Name \_\_\_\_\_  
Title \_\_\_\_\_  
Company \_\_\_\_\_  
Address \_\_\_\_\_

ITT Business Systems ITT

## • Croxley • business forms • listing papers • business systems • Holdfast • computer labels by John Dickinson

When precision is paramount call on John Dickinson Stationery, part of a major group with unmatched experience, expertise, production capability, distribution network - in every field, the leaders. The names say it all. The range does too.

Please send me the new Croxley and Holdfast products.

Name \_\_\_\_\_  
Company/Address \_\_\_\_\_

John Dickinson Stationery, Abbey House, Hemel Hempstead, Herts. SG9 6LH. A member of the Dickinson Group.

# INDIAN SCENE ICIM emerges from the chrysalis of ICL India

ICL's "in India" no longer. In its place is a new company, International Computers Indian Manufacture, ICIM, in which ICL has a 40% stake.

Shares in ICIM are widely held by Indian investors, and are quoted on the Bombay stock exchange. In order to finance the manufacture of 2904s at Poona, the company went to the market last August to issue 1,750,000 new shares at 10 rupees apiece - ICL subscribed 10% to keep its stake at 40%, and the issue was fully subscribed. Share issues have now raised in total nearly £1.6 million towards the cost of 2904 production.

Needing to raise further capital, the company is floating two- and three-year loans, and encouraging employee involvement by offering them a half per cent better rate of interest.

ICIM now has the precious government-issued manufacturing licences without which nothing can be done. It is licensed to build 100 2904s over five years; 100 600-card-per-minute card readers a year; 100 600-line-per-minute printers a year; and 200 magnetic tape transports.

The first six 2904s are due to be completed before the end of the financial year in September. The first machine was due to have been completed in April.



The computer room of the National Dairy Development Board, equipped with an ICL 1901A. Based in the north-western state of Gujarat, the board is now developing systems on a 2950 and a 2903, together worth VMEK in the future, and is developing a system to record and compare milk yields and other statistics on dairy herds throughout India (CW, June 1, 1978).

but observers believe that it is not likely to be ready before June.

Next year's plan calls for another 18 to be built, and orders for the first 12 have already been taken.

The first machine is destined for Godrej and Boyce, manufacturer of typewriters, safes and office furniture. Like most of the early customers, the company is an ICL user, with one of the 32 Indian-built 1901As.

In a country where computers are much harder to acquire than gold, it seems positively greedy for the Calcutta Electric Supply Company, CESC, to demand two 2904s; its first will be the second machine built. Other customers include Bharat Heavy Electricals in Bhopal, Binnie's textiles in Madras, and the Shaw Wallace trading company, also in Madras, all of which are 1901A users.

New and first-time users include Colgate Palmolive in Bombay, DPS India in Calcutta, and a new company, Christine, Hoden Ltd, which plans to offer bureau services.

In a country as starved of and as hungry for computer power

as India, the 1901As which are returned by customers will of course not be scrapped. They will be refurbished and are likely to be offered to customers who ordered 1901As but were disappointed when manufacture ceased after the 32nd machine had been built.

The estimate is that ICIM will take back two or three a year, and that after refurbishing, there will be a further five years of life in the machines.

The machine to be built is being called the 2904/50, and the specifications look comparable to those of ICL 2904s, although memory capacity looks rather limited.

The standard configuration being offered to Indian customers includes the central processor with 48K-words of main memory and 16K-words of microcode store; a console VDU, one to four direct data entry CRT stations, 300-card-per-minute reader, 600-lpm printer, one to four EDS 60 60-megabyte disc drives and a tape unit. On the Indian market, that is a medium to large machine.

The 1901A manufacturing programme was hardly a success, since it took much longer than planned to build 32 of the 56 machines licensed. What reason is there to suppose that the 2904 programme will be any more successful?

There are, in fact, several reasons. The 1901A programme was bedevilled by problems in getting licences to import the necessary components and other items needed for manufacture, and licences were generally granted for only four or five machines at a time, after which manufacture was held up until new licences were issued.

The new government is showing signs of being much more accommodating to big business, and getting imports into the country is not as difficult as it used to be; the first Wang VS computer in India arrived in February, and took two days to clear customs. Two months has often been par in the past.

Secondly, the new machines are being built at ICIM's own factory in Poona, by contrast to the 1901As, which were built in Bangalore by a government-owned company, Bharat Electronics Limited, BEL, under ICL supervision.

The third factor is that although it now has only 40% of the company, ICL in London is perceiving a much keener interest in ICIM's affairs than in the past, and is committed to the

success of the programme.

Some two years ago, ICIM picked up several orders for larger 2900s, but little has happened since then. The largest machine is a 2960, funded in part by UK government aid, at the Indian Institute of Technology in Delhi. The National Dairy Development Board, which wanted a 1904S as long ago as 1973, now has a 2950 and a 2903, while Kirloskar Oil Engines, Mafatlal textile house, and the Signal Corps of the Indian Army each have 2950s, and Bharat Heavy Electricals has two. Most promising current prospect is Life Insurance Corp of India, which is considering a 2956/10.

"ICL muddling through to a brighter future?" was the headline on Computer Weekly's first in-depth look at the Indian company (June 27, 1974), and to some extent that brighter future can be said to have arrived.

But for a company of its size, ICIM is seriously under-employed, and there are three distinct opportunities which appear to have been ignored.

There are thousands of unit record systems installed in India and ICL, all over-ripe for replacement by very small computers. Thrusting companies new to the computer business like DCM and Hindustan Computers are doing very well out of replacing these with their own mini and microcomputers.

There are also thousands of unit record systems installed in India and ICL, all over-ripe for replacement by very small computers. Thrusting companies new to the computer business like DCM and Hindustan Computers are doing very well out of replacing these with their own mini and microcomputers.

There are also thousands of unit record systems installed in India and ICL, all over-ripe for replacement by very small computers. Thrusting companies new to the computer business like DCM and Hindustan Computers are doing very well out of replacing these with their own mini and microcomputers.

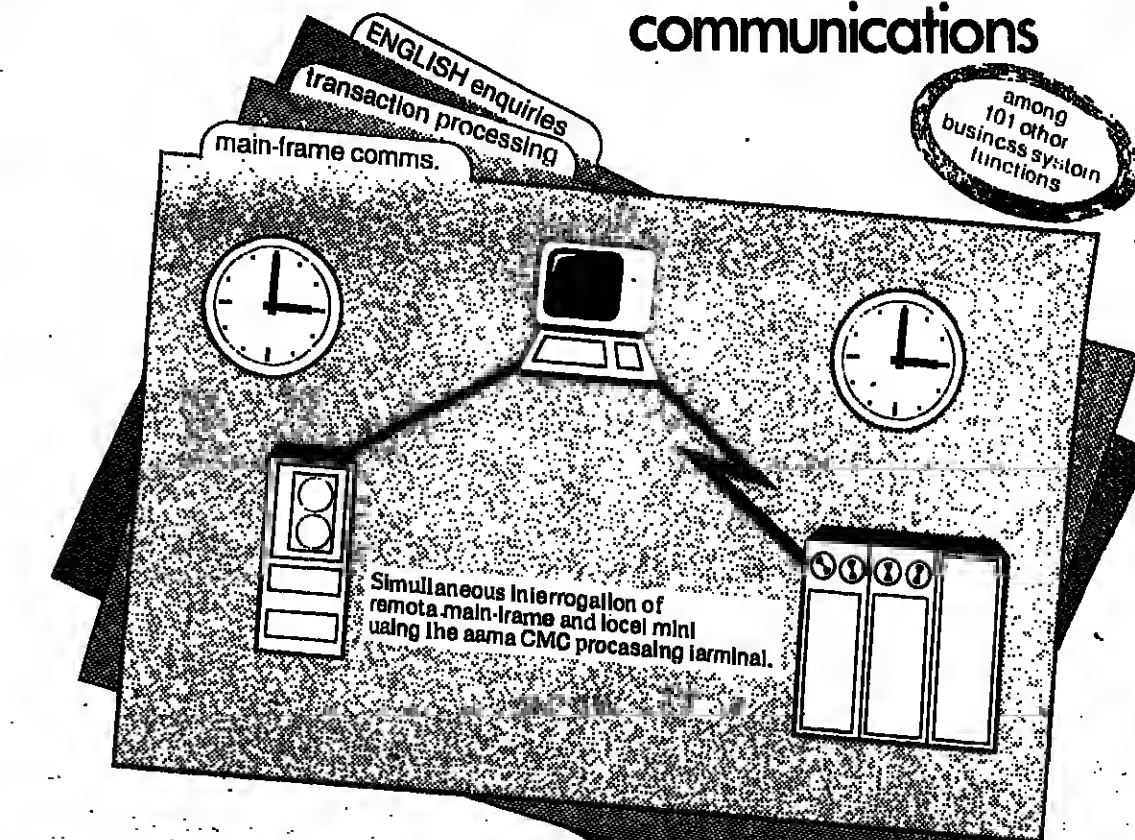
## Report by Tim Palmer

Although a small company in world terms, International Computers Indian Manufacture, ICIM, is far from a minnow in Indian terms. In the year to September 1979 the company, 40% owned by ICL, reported pre-tax profits of £606,000 on turnover of £5,030,000. TIM PALMER looks at the prospects for ICL's successor in India.



value of the computer. This would allow ICIM to buy a medium-scale machine or several 2903s and System Tens from ICL for use as bureau machines. The Indian computer market is dominated by service companies, and the fact that ICIM is not a major contender in this market (as IBM definitely was) loses the company introductions to potential future customers for in-house computers.

## CMC REALITY ROYALE for interactive distributed-network main-frame communications



Need to hold most files centrally yet store some data locally? Then for IBM or ICL main-frame users CMC's 3270 or 7181 emulation is the simple, effective solution.

REALITY ROYALE, made at Hemel Hempstead by Computer Machinery Company (est. 1969), is a mini-computer based, data base management/business information system particularly useful when a mass of facts and figures require frequent, speedy access. And it is especially clever at answering unscheduled enquiries and analyses needing prompt attention.

REALITY ROYALE'S much applauded ENGLISH enquiry language enables anyone to use the system wherever they work. It is also available with proven software packages - Business Control Programs (BCP) and Manufacturing Control System (MCS) - ideal for the control of all business and production functions.

CMC

Data Preparation  
Distributed Processing  
Business Systems

A Microdata Company

Communications Manager  
Computer Machinery Company Limited

FREEPOST  
Hemel Hempstead  
Herts. SG9 6LH

Telephone 0462 442111



## COMPANY NEWS

## Plessey makes up its lost ground

IT looks as if Plessey has turned the corner at last, and — now that Racal is preoccupied with turning Decca around — Plessey could once again be regarded as an electronics high-flyer.

Third quarter figures reported last week show that Plessey has made up the ground lost through strikes in its first half, and finance director Peter Marshall is looking for profits for the full year better than analysts' average forecast of £80 million.

Pre-tax profit in the October to December quarter soared ahead 63% to £16,026 million on turnover up 19% to £191.5 million compared with the same period in 1978. The first half was no strike-hit that the excellent third quarter performance moved profits for the nine months ahead only 7.6% to £35.4 million.

Operating profit for the nine months was £10 million, which is a 31% improvement over the

1978 period, and Plessey says that stronger sales and better margins all contributed.

Two significant disposals, one beneficial and one detrimental, took place last year. In January last year, Plessey sold its one-quarter stake in ICL, so cutting itself off from a pre-tax profit contribution of some £10 million. Later in the year it disposed of its loss-making Garrard record changer business, effectively taking it out of the consumer electrical and electronic businesses.

During the nine months to December, electrical systems and equipment represented 20% of sales, followed by 22.5% for main telephone exchange and transmission equipment, 16% for office data and control systems, 15.9% for components, and 15% for the hydraulics, aerospace and engineering division. The remaining 1.2% comes from the now divested Garrard business.

## Decca losses a worry for Racal planners

HIGHER than expected losses at Decca for the year to the end of this month are cause for concern at Racal.

While the company's takeover of Decca has been agreed, shareholders in Decca have about four weeks to decide whether to take Racal shares or the cash alternative. The shares are a better bet than cash so long as Racal shares stay significantly above the 200 pence mark, but the forecast that Decca losses would be nearer £10 million than the previously anticipated £8 million caused a dip in the Racal share price, and any more bad news could leave the company with an avalanche of Decca holders opting for cash rather than paper.

This in turn would deplete Racal's reserves just when it needs to invest in bringing Decca back to profitability.

## Kode says 1979 strike hit profits

KODE International, parent company of data entry systems supplier Kode Ltd, estimates that its pre-tax profit for 1979 would have been about £200,000 higher if its manufacturing operations had not been affected by last year's engineering strike. Profits were also hit by stock write-off. The pre-tax profit figure for 1979 was £1.25 million, no higher than in 1978, while turnover increased 13% to £8.5 million.

As in 1978, half the group's total turnover was accounted for by Kode Ltd and Kode Services, the latter being the maintenance operation for Kode equipment. The two firms form the capital goods division of Kode International.

The main product sold by Kode Ltd these days is the XL/40 multi-terminal key-to-disc system built in the US by Pertec. The Datavert single station data entry display terminal, designed by Kode itself, is no longer being built in volume, while a lot of punched card and paper tape equipment in Kode's inventories has been written off. It used to

represent the main side of Kode's business.

Pertec has just been taken over by Triumph-Adler of West Germany which already sells the XL/40 on the Continent. But Kode says that it has been assured by Triumph-Adler that its agreement with Pertec will not be affected in any way by the takeover.

However, the move over to XL/40 marketing and the decline of other products has reduced the need for manufacturing personnel at Kode's factory at Caine, Wiltshire, and 20 out of the 330 workforce there have been made redundant. Kode does not expect to have to make any more redundancies.

A lot of the staff at Caine work for another Kode International firm, Kam Circuits, which builds PC boards. Kam is part of the components division of Kode International along with Moore Reed, of Andover, which employs about 250 people and builds military equipment.

Total dividend paid by Kode International for 1978 was 0.58p net per share.

Kode International prices are shown in the CW shares table.

## Dicoll sales centre

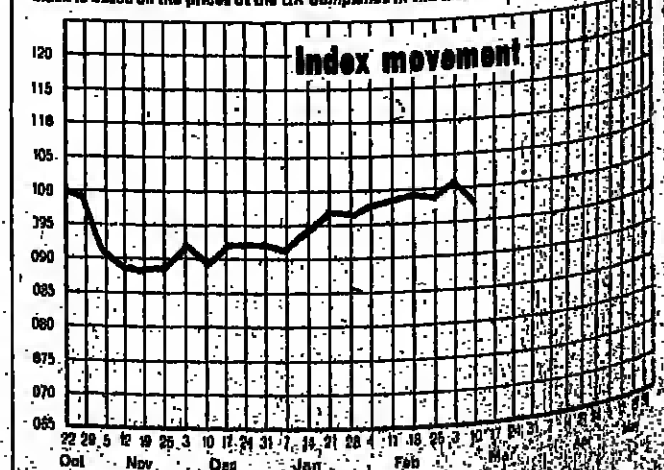
DICOLL Electronics announces that it is opening a sales and service centre at Chorley, Lancs, to cover the North of England, Scotland and Northern Ireland. Dicoll specialises in building microcomputer systems based on the Digital Equipment LSI-11 and has just acquired a second factory with a floor area of 12,000 square feet near its existing plant at Basingstoke, Hants.

## CW SHARES TABLE

Due 7/8/80 Index: 95.89

1980		1979		1978		1977	
High	Low	High	Low	High	Low	High	Low
334	230	325	225	315	215	305	205
42	28	38	28	35	25	25	15
27	23.15	25	23	22	20	20	18
78	66	65	55	60	50	50	40
120	112	110	100	105	95	95	85
100	88	85	75	80	70	70	60
850	840	830	820	810	800	790	780
128	123	120	115	110	105	100	95
180	168	165	155	150	140	135	125
812	407	405	200	200	100	100	50
270	258	255	245	240	230	220	210
2034	2030	2025	2020	2015	2010	2005	2000
231	227.75	227.5	227.25	227	226.75	226.5	226.25
142	118	115	110	105	100	95	90
74	64	62	52	50	40	35	30
248	238	235	225	220	210	200	190
254	251	250	245	240	235	230	225
270	268	265	260	255	250	245	240
211	202	200	195	190	185	180	175
1122	1132	1130	1120	1110	1100	1090	1080
478	458	455	445	440	430	420	410
148	138	135	125	120	110	105	100
227	188	185	175	170	160	150	140
64	52	50	40	35	30	25	20
227	221.5	221.25	221	220.75	220.5	220.25	220
1388	1349	1345	1340	1335	1330	1325	1320
228	217	215	210	205	200	195	190
221	217.5	217.25	217	216.75	216.5	216.25	216
228	217.5	217.25	217	216.75	216.5	216.25	216

The table shows the closing prices in London and New York at the end of each week. The index is based on the prices of the UK companies in the table.



## COMMENT

MANY home owners are no doubt feeling the pinch as a result of mortgage rates around the 11% mark. But those privileged borrowers should remember that the industry is having to pay about 22% for its overdrafts.

One of the results of this is the firms are having to cut down on stocks. This has a spiralling effect and in the medium term will add to unemployment from which many not even while-collar staff, will be exempt.

The current overdraft rate at least many to suggest that more cuts must be made in public expenditure — if one believes in the principle according to Milton Friedman. It is about time both branches recognised that there are advantages and disadvantages to the three main schools of economic thought: monetarism, Keynesian, and the use of the best person to run the country's finances. It would also be in this country's interests if the pundits of whether political persuasion would remember that someone on a dole is not paying taxes and can buy the products of light engineering on which the UK economy is based.

Modcomp figures

DULL profit figures for 1979 have been reported by Modcomp, Modular Computer Systems of Fort Lauderdale, Florida. The manufacturer, which AEG-Telefunken of West Germany now has a 25% stake, reported net profit up 58% to \$4.67 million on turnover up 11.3% to \$71.8 million.

## BOOKS

## Readable version of Fortran 77

Fortran 77, by H. Katzan Jr. 207 pp. £13.80. Van Nostrand Reinhold Co Ltd (CW), Molly Millars Lane, Wokingham, Berkshire. Tel: 0734 789456.

FORTRAN is among the most venerable of computer languages, dating from IBM's first release of a Fortran compiler in 1957.

Despite its many deficiencies compared with newer languages, it remains in widespread use and will probably continue to do so, since Fortran compilers are widely available and there must be a gigantic worldwide investment in Fortran programs and programmers.

Of course, the specification of Fortran has been continually enhanced, and Fortran 77 is the latest of the official versions of the language.

Compared with earlier versions, it contains a number of extensions but also several unfortunate restrictions that make it hard to ensure that programs written in earlier versions of the language constitute valid Fortran 77 programs. This is an important consideration in developing portable software Fortran programs.

The Fortran 77 Standard itself, like many language standards, is a vast and unreadable document; this one is about as big as a

modest telephone directory.

Professor Katzan's book is essentially a précis of the Fortran 77 Standard which is much more readable and manageable. Here, all the essential features of the Fortran 77 Standard are presented in a readable, 200 page presentation.

It will be useful to those who simply need a readable reference on the contents of the Fortran 77 Standard, but that is the extent of its usefulness; unfortunately it contains few overall explanatory comments or examples.

Dr PETER WALLIS  
Bath University

## No-nonsense way to portable software

Compatible Fortran, by A. Colin Day. 107 pp. £5.95. Cambridge University Press (CW), 200 Euston Road, London, NW1 208.

MOST portable scientific programs are still being written in Fortran. Although newer languages offer substantial technical advantages, the universality of Fortran provides an unassailable argument for its use in many programming projects as, for example, in many numerical libraries.

This widespread use of Fortran is unlikely to be seriously challenged in the near future; even Ada may take many years to become ubiquitous.

Because of this continuing widespread use of Fortran for writing portable software, there is a desperate need for a straightforward, no-nonsense presentation of the problems that can be encountered in the writing of portable Fortran programs and this need Dr Day ably meets in this book.

There is a large number of Fortran Standards, and the recent advent of Fortran 77 adds yet another.

Dr Day's way of dealing with this situation is the "common set" approach, which advocates production of portable Fortran programs written in a language which is common to all the dialects to be covered.

He accomplishes this with a single proviso that the restrictions imposed by the use of 8a Standard Fortran are described in separate chapters.

The book is organised according to the different Fortran constructs. For each the Compatible Fortran version of the construct is specified and details of its use lucidly explained.

Further chapters discuss matters as numeric range and accuracy, character manipulation and media problems.

The clear, light style helps a book achieve its ends and admits even those with no interest in the use of Compatible Fortran could do well to consult it as a model example of a useful text for practising programmers.

Dr PETER WALLIS  
Bath University

## Enough information to run simple programs

Machine and assembly language programming of the PDP-11, by Arthur Gill. 176 pp. £11.65. Prentice-Hall International (CW), 66 Wood Lane End, Hemel Hempstead, Herts. Tel: 0442 58531.

THIS book is an edited collection of notes prepared for a university course in machine structures using stand alone Digital Equipment PDP-11s for "hands-on" experience.

The student is assumed to have some previous high level language experience and to have access to the manufacturer's processor handbook and assembler manual.

In the first five chapters, the author aims to give enough information to permit the student to run simple programs.

An adequate treatment of number system conversion is followed by a very basic description of the PDP-11 architecture, although very little information is actually provided; the addressing of peripheral registers and the byte addressing scheme are mentioned but not properly explained.

The text also draws upon the next chapter, which deals adequately with 2's complement addition and subtraction, ASCII and parity. Floating point representation is briefly described and the subject is excluded from the rest of the book.

The chapter dealing with instructions and addressing modes is distinctly sketchy; the use of

autoincrement in implementing absolute and immediate addressing, and the nature of relative addressing and branch instructions, are explained (naïfically clearly for the novice).

The JMP instruction is barely mentioned, and the various NOOP instructions are treated very briefly and without explanation of their microcoded nature.

The introduction to assembly language which completes the introductory part of the book is quite clear.

The second part of the book describes "more advanced" techniques and hardware features. In general, the treatment of machine features is well presented and clear, including details of carry, overflow, and multiple precision; TST, CMP and conditional branch instructions; traps, breakpoints and priority interrupts.

The description of stacks is reasonable, but coverage of subroutine calls, argument transmission and nesting is shallow. The explanation of the general use of JSR and RTS instructions and the over academic treatment of recursion tend more to confuse than to illuminate.

A fairly good overview of the logic of the assembler shines a chapter with a description of linkage editing which is well presented and more thorough than most.

Advanced assembler techniques are well covered, although

the novice might not appreciate all the concealed points.

The whole book must be seen as existing mainly as a vehicle for the examples and exercises which appear in each chapter;

their quality is uniformly high. Unfortunately, the supporting text is very thin and shows many signs of hasty composition and lack of editorial revision.

J. R. TRUELOVE

## Designing programs that always work

Structured programming: theory and practice, by R. C. Linger, H. D. Mills and B. I. Witt. 402 pp. £15.50. Addison Wesley Publishing Co Ltd (CW), 11 Hills Place, London, W1. Tel: 01-439 2541.

DO you want to be able to design programs which always work correctly? And do you want to be able to show, convincingly, that they are correct, so that you can shake off that worrying suspicion that there is some condition, some pattern of data which you forget to test? If you do, and if you are prepared to work a bit to learn the secrets, read on!

This book is aimed at professional programmers who are dissatisfied with traditional, haphazard programming techniques and who want to know how to design programs which are provably correct.

As such it is both practical and self-contained, asking its readers only for some aptitude and a willingness to study.

The book contains seven chapters. Chapter 1 is an Introduction and Chapter 2 provides

the mathematical ideas essential for subsequent chapters.

Chapter 3 describes a process design language, a programming language-like way of writing down the design of a program.

Chapter 4 discusses structured programs — what the term means and what the characteristics of structured programs are.

By this stage the diligent reader is equipped to read a program, restructure it if necessary and annotate the program text with logical commentary describing its behaviour.

Chapter 5 shows this process in detail, including an impressive and detailed case study while Chapter 6 develops the notion of logical commentary into formal verification: techniques for proving program correctness.

Finally, Chapter 7 deals with writing structured programs, now that the reader knows what is needed if the program is to be reliable and provably correct. The chapter ends with three detailed case studies.

MARTYN THOMAS

## COMPUTERMARKET'80 LONDON

25, 26, 27 March 1980  
West Centre Hotel, Lillie Road, London SW6  
(near West Brompton & Earls Court underground)

Hundreds of exhibits for existing and prospective users of micro, mini and mainframe computers.

Peripherals, ancillary equipment, services, software and supplies as well as computers from many leading manufacturers.

Graphics, communications, scientific and commercial systems on show — in the **FIRST COMPUTER SHOW OF A NEW DECADE**

Use this coupon for pre-registration, free admission and complimentary catalogue at Computermarket:

Name \_\_\_\_\_

Job Title \_\_\_\_\_

Organisation \_\_\_\_\_

Address \_\_\_\_\_

Postcode \_\_\_\_\_

Entry is restricted to those over 18 with an interest in computers. Further pre-registration forms are available from Couchman Ltd, 42 Great Windmill Street, London W1V 7PA.

# FOR ONCE WE RECOMMEND YOU BUY YOUR ACCESSORIES ANYWHERE.

Now discs, tapes, modules, interfaces, even terminals can be bought off the pages of our new Mail Order Catalogue: wherever you are.

Call the catalogue information desk on (0734) 25533 for your first edition.

**digital**

0734 25533



Contact  
**Xenia White**

# market place

FOR SALE

For  
Advertising Rates  
PHONE 01-261 8757

**SK** DEC SYSTEMS FAST!  
COMPUTER SYSTEMS LTD

- PDP 11 SYSTEMS IN STOCK
- FULL RANGE OF SOFTWARE
- PER CALL OR CONTRACT MAINTENANCE AVAILABLE
- WIDE RANGE OF DEC COMPATIBLES

YORK HOUSE, STEVENAGE ROAD  
HITCHIN, HERTFORDSHIRE, SG4 9DY

south 0462-31116 north 0706-58446 telex 826580

**digital** systems and compatibles in stock

PDP 11/04 /34 /60 /70  
COMPUTER SYSTEMS  
COMPETITIVE  
DELIVERY &  
PRICES

**FAST DEC!**

FROM  
**Systek**

HR House, High Road,  
North Finchley, London N12 0AZ  
Tel: 01-349 2911 Telex: 28227

**DISC DRIVES  
FOR SALE**

2x Dec. — RP03 Disc Drives, fully maintained by Digital on full commercial contract.

**PRICE: £5,000**

Contact: Mr. O. A. Williams

Powell Duffryn Computer Services, Faraday Road,  
Dense Hill, Basingstoke, Hants. Tel: 0286 51821

**N** Nelson Computer Services Ltd  
ST. JOHN'S CHURCH, RADFORD ROAD, RAYWENSTALL, LANCAS BB1 7PA  
**New and Refurbished**

**Card Equipment**

HAND PUNCHES, REFORISHED  
IBM 026-028-000-129  
ICL 72 PUNCH PUNCHES  
UNIVAC 7201-1710 VP/VIP  
ICL & IBM SORTERS  
ICL & IBM REPRODUCERS  
DECISION DATA READER PUNCH  
ON LINE TO IBM 360/370  
CNC DEC AIDS, etc.

**Forms Handling**

BUSTERS  
DECOLATORS  
CULLITINES  
SHREDDERS

**Data Storage**

TAPE, DISC & CARTRIDGE  
PRINT/READ STORAGE  
FLOPPY DISC STORAGE

**Media**

MINI & FLOPPY DISCS  
TOP & FRONT LOAD CARTRIDGES  
DISC PACKS  
DATA MODULES  
MAGNETIC TAPE  
PAPER TAPE  
TELEPRINTER ROLLS

**Plus, Plus, Plus**

DATA BINDERS, FRESHED  
PRINTER RIBBONS, VDU  
DESKS, A.S.R. 31 TELETYPE  
DECISION DATA PRINTERS  
120 CPS, 132 COLUMNS  
RD and MKR

**BUY — SELL — LEASE — RENT —  
MAINTAIN**

Phone: 07062-29125 5 Lines

Computers Bought and  
Sold

**EOB  
LIMITED**  
Tel: 0793-44777  
Telex: 637783

**DIBOL  
PROGRAMMERS**

available for  
Contract or Bespoke  
Software Development

Contact:  
01-398 8445

**TRADEPRINT**

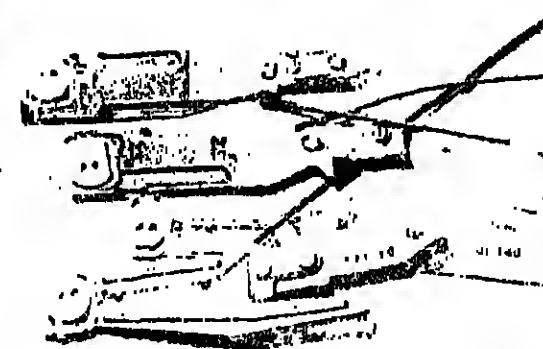
Professional manufacturers and suppliers in  
the paper and integrated electronics of  
the following

LISTING PAPER SINGLE & MULTI  
CONTINUOUS BUSINESS FORMS  
MULTI PART SETS  
CUT SETS  
BOOKS AND PADS  
CHEQUES AND OCR DOCUMENTS  
OVERPRINTING OF EXISTING  
STATIONERY ETC ETC

800 DEPTH FORMS OUR SPECIALITY

TRADEPRINT & STATIONERY CO. LTD.  
MORFORD ROAD, ALDRIDGE  
WALSALL W88 8TF  
Telephone: 0922 83868

**WHY SCRAP A DEFECTIVE HEAD??**



We can replace your defective magnetic head  
on an exchange basis.

Please call for further information and brochure.

**VAS COMPUTER PARTS  
& ACCESSORIES LTD.**

Tower House, College Road  
Bromley, Kent, England  
Telephone: 01-464 5895  
Telex No. 896559

"GIVE US THE...  
tools, food, clothing, heating — all cost  
money, but all are involved in caring for  
children — and much more.  
If you give us — not tools — but your  
computer waste, we can do the job of  
caring for over 6,000 children who  
need love, care and security.  
**CAN YOU HELP?**  
Please contact:  
Paul Harrison  
National Children's Home  
65 Highbury Park  
London, N6 1UO  
01-228 2033  
...we'll do the job"

**AVAILABLE  
SUMMER, 1980**

Either as a whole system or in  
parts. 3 1/2 years old NCR 8200  
Computer consisting of:  
1 48K Processor  
1 9.8m/Byte Disc Unit  
1 200 lpm Line Printer  
2 VDUs  
25 656 Cartridge Disc Packs  
BOX NO. 1083

**01  
-637  
7584**

Upgrading?  
Downgrading?  
New Systems?  
Program Maint.? Sickmess?

Systems — Programming — Operations

When you need Contract people,  
Computer Two Thousand will  
make your life easier.

**FOR SALE**  
PAPER TAPE PUNCHES/  
VERIFIERS  
4 LINOTYPE PUNCHES  
6 LINOTYPE + 2 BOP  
VERIFIERS  
1 BOP HARD COPY (DATA-  
MATIC)

Please contact:  
Computer Manager  
PO Box 21, Civic Centre  
Harrow, Middlesex HA1 2UJ  
Tel: 01-863 6811, ext. 2202

**£295.  
LINE DRIVERS**

REPLACE  
IN-HOUSE MODEMS

TEL: (0280) 703555

FOR DETAILS & DELIVERY

**TECH-NEL**

**132 COLUMN  
CENTRONICS PRINTERS  
AT ROCK BOTTOM PRICES!!**

NEW 700 AND 701 PRINTERS FOR IMMEDIATE DELIVERY  
\* 132 COL TRACTOR FEED  
\* 80 C.P.S.  
\* PARALLEL INTERFACE  
\* STANDS

MODEL 700 — £800

MODEL 701 — £850

For further details Tel. N/CLE 681611 (8111 Telex)

**SYSTEM  
800 LTD.**

MYLORD CRESCENT,  
CAMPERDOWN IND. EST.,  
KILLINGWORTH,  
NEWCASTLE UPON TYNE.

**Qume  
CIPER  
digital  
OKI**

Rohan Computing

**WANTED**  
To purchase, all used IBM  
computers.  
J. & M. COMPUTERS  
The Studios, Plains Road  
Great Torrington, Essex  
Tel. Malden  
(0621) 892333

**WANTED**  
Used disk packs and cartridges  
make, any condition, any age,  
and any other computer related  
items.  
We supply new and reconditioned  
magnetic media and computer  
equipment.  
01-729 2100  
Bendon Computer Services Ltd.

**HEXAGON  
computer services**

**DEC VT52's**

A number of ex-hire units available for immediate  
delivery with 3 months guarantee.

**£895**

Also a limited stock of ex-hire VDU's and printers.

Call Peter Murphy on 01-283 3667

**COMPUTER FACTORS  
(SALES) LTD.**  
0203-58318

AVAILABLE FOR SALE

VARIAN V77-600 MEDIUM SYSTEM  
UNIVAC BC7  
VENTEK 2200-16K AND PERIPHERALS  
PHILIPS P320/P410 + HARO DISK  
OLIVETTI PCS 3030  
IBM SYSTEMS 32s/NCR 8200  
BURROUGHS TC3500, L9000, L9900  
AND ALL PERIPHERALS

EQUIPMENT REQUIRED:

BURROUGHS 880, 880D, B73Ds

Contact: ALISTAIR DAVIDSON or  
BARBARA BEANLAND for details

**OLIVETTI A5**

9 months old, 2K, card fed, comprehensive maintenance  
coverage. Also available: Carter Peratt card cabinet, side tables,  
programmes and stationery, etc.

Offers: Contact — Mr. Bell, John Hill Electric, Exeter  
76371.

**FOR SALE**

IBM 370/135

Phone Lynn Stewart

on 0532 32046

**IBM 129, 029, 026  
PRINTING PUNCHES**

- \* All fully refurbished
- \* Free warranty
- \* Guaranteed maintenance
- \* Various code options available
- \* Immediate delivery

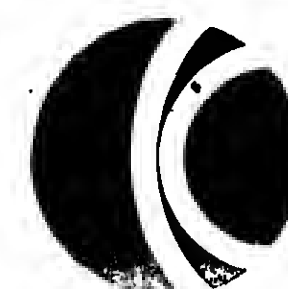
TEL: 0268 710252

C.S.I. COMMERCIAL DATA LTD., Downham Road, Ramden Heath, Essex, Essex

**WEBSTER D/P SERVICES LTD.**  
NEW/USED DP EQUIPMENT  
BUY OR SELL THROUGH **W D P**

NEW DE LUXE 80 COLUMN  
HAND PUNCHES (EX-STOCK)

**W D P**  
01-464 9011  
TELEX 808980  
WEBSTER D/P SERVICES LTD.  
85 WINDMERE ROAD, BROMLEY  
KENT BR1 3AA



K-tel International (UK) Ltd.

For:

Key to Diskette  
Data Preparation Service  
Ring 01-992 8000  
K-tel D.P. Dept.

**FOR SALE**  
Oligic M15E System  
80K Processor

11.8 Megabyte FEOS Disc, 2 x VDU,  
180 cps Printer  
IBM 029 Card Punch  
Immediate Availability  
Telephone: 01-837 8364

**FOR SALE**

DEC RK05J Disc Drives, 411 high  
double cabinet with power supply, KLB  
interfaces, all in stock.  
0783-44777

**FOR SALE  
ICL System 4/72**

CPU — 896K (can be reduced if required)  
EOS 60's (2816)  
Mag. tape units (4461)  
MCCCU  
Line Printers (2430)  
Card Readers (4513)  
Fully maintained by ICL

Available in August

Enquiries to:

Alan Merriam, Operations Manager  
IPC Business Press Ltd.  
Oakfield House, Perrymount Road  
Haywards Heath, Sussex  
Or telephone:  
Haywards Heath (0444) 58188

BUSINESS SYSTEMS  
SOFTWARE PACKAGES  
FACILITIES MANAGEMENT  
RECRUITMENT ADVERTISING  
CONTRACT STAFF SUPPORT  
COMPUTER SECURITY  
BUSINESS SYSTEMS

HEXAGON HOUSE  
145 WARDOUR ST  
LONDON W1V 1TE

01-439 3671

**OPERATORS  
CONTRACT  
AND  
PERMANENT**

FOR A PROMPT SERVICE  
PHONE 01-439 6481 NOW

and speak to a top professional in an  
established company  
(24-HOUR ANSWERING SERVICE)

**EFFECTIA GRAVIS**



**EFFECTIA  
GRAVIS**

Personnel National House  
Consultants 66 Wardour Street  
01-439 6481 LONDON W1V 3HP

**AVAILABLE FROM T.S.I. AT  
CONSIDERABLE SAVINGS**

IBM 3033.NB. First delivery: March '80  
Second delivery: April '80

IBM 3033 N4. Delivery: August '80  
Please contact: Mr. A. Neefs, T.S.I.

17 Rue D'Idalie, 1040 Brussels, Belgium  
Tel: 02/649.90.14. Tx. TSI 62.786

**AVAILABLE SHORTLY  
ON LEASING TERMS**

CMC-REality Model 8000, 48k Processor plus  
Terminals, Printer and Tape Deck.

Enquiries to: Brien Elks 01-422 3434

**DATA PREPARATION  
CARDS**

Diskette/Magnetic Tape/Paper Tape  
Collection/Delivery for fast reliable service.

Telephone: 01-363 6742  
MORPHEUS DATA PROCESSING

Refurbished IBM and 129 Printing Punches

New and refurbished hand punches. All equipment with  
manufacturer's maintenance

INPUT-OUTPUT Data Processing Ltd., Data House, 92 High  
Street, Brighton, Essex. Tel: 0274 54881

هذا من المص



## PRODUCT NEWS

## Mains isolating unit for minicomputers

FROM Foster Cambridge comes a temperature sensitive, mains isolating unit designed to protect small computers in the event of a significant rise in the ambient temperature caused by a failure to the air conditioning plant — and it is said to allow DP managers to sleep easier at night.

It was designed following an air conditioning unit failure at Foster Cambridge's own installation, which suggests that the isolating system could help to eliminate three-shift working and reduce downtime.

The isolating system comprises two units — a 150 mm clearance dual indicator cabinet from 0 to 40°C and having a spiral temperature sensing element filled with mercury as well as a three-phase isolating control box.

The dial indicator is normally mounted at the position in the computer room where equilibrium exists between a heat source and the flow of cool air, while the control unit is fitted close to the main three-phase isolating switch.

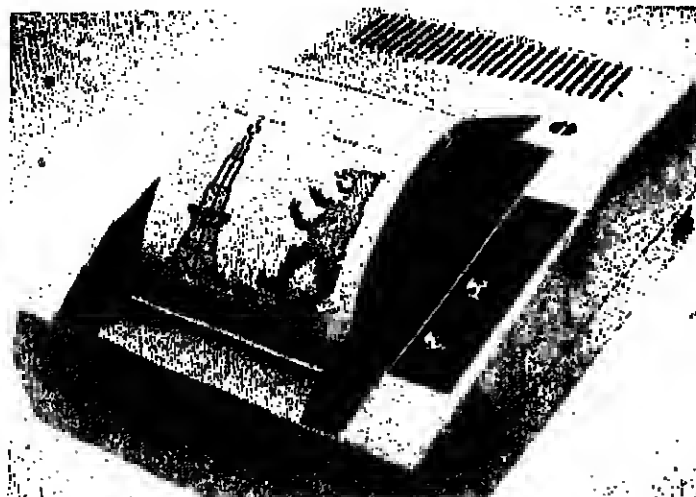
There are two set pointers on the dial indicator. One is set to the manufacturer's recommended maximum operating temperature, about 30°C, while the other is set somewhat lower at, say, 25°C.

Should the ambient temperature rise to the lower setting, this would trigger a built-in audible alarm. During normal working hours, this would be heard and allow corrective action to be taken. A push-button can be used to cancel the alarm.

If the temperature continues to rise to the higher setting either through it being an unattended period or through no action being taken, then a three-phase isolator within the control unit trips out, shutting off the supply to the computer distribution panel.

Once switched off, the mains then cannot be switched back on without human intervention in operating a key. This avoids the possibility of the whole cycle repeating itself as the environment cools and then heats again.

The unit is priced at £450. Foster Cambridge Ltd (CW), Howard Road, Eaton Socon, St Neots, PE19 3EU. Tel: 0480 76321.



NMP-40 printer for teletext services.

## Screen image printer for teletext systems

ANTICIPATING the future need for hard copy printouts from teletext services such as Prestel, Olympia has designed a screen image printer using its NMP-40 mechanism and Dataplot will be distributing them in the UK

either "ready to run" or OEM. As a universal data interface has yet to be completed, Olympia does not expect to provide full drive electronics for UK television systems until later this year.

The NMP-40 is small and said to be very quiet, and has a print station consisting of 240 discrete electrodes, equi-spaced across the 127 mm (five inch) wide paper, each being individually sprung loaded on to the paper.

The only moving part is the paper transport drive which consists of a rubber platen driven by a small DC motor. The opto pick-up gives line timing information.

Paper is loaded by lifting the platen assembly and dropping in a roll of metalised paper. In operation, a button is pressed to initiate printing and about three seconds is quoted for the production of a full page.

Overall dimension of the case version is 250 x 360 x 150 mm.

Dataplot Ltd (CW), 39-49 Roman Road, Cheltenham, GL51 8QQ. Tel: 0242 30030.

## Digitus move

APPLE and Cromemco dealer Digitus has moved from London's Oxford Street to Covent Garden. The new address is 8 Macklin Street, London WC2, and the telephone number is now 01-405 6761.

## Bilingual video terminal for Arabs

A BILINGUAL text processing video terminal capable of displaying mixed Arabic and Latin scripts, is available from Delta Data Systems.

The terminal employs the facilities of the 16-bit chip based Delta 7300 stand-alone text processing terminal and for Arabic scripts, the appropriate character generator has been added with three control keys.

They are designated "LATIN", "ARABIC" and "MIXED". In Latin mode, characters are entered on the screen successively from left to right. In Arabic, characters are successively entered from right to left.

When changing from Arabic to mixed, the screen cursor remains in its current position and subsequent keypresses will enter Latin characters. The cursor position after each all just-entered Latin text character position to the left.

reversion to Arabic mode immediately to the left of just-entered Latin text. vice-versa when changing from mixed mode to Latin mode.

The normal complete displayable characters comprises the standard 128 ASCII of alphanumeric Latin characters and symbols plus a set of 65 Arabic alpha and numeric characters, all of which are in ROM.

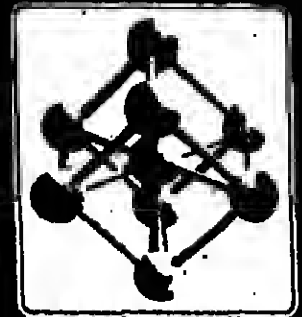
As the character matrix on screen is fully programmable, the Arabic characters are displayed properly joined up.

Other features of the terminal include multiple split screen operation, text memory up to 28,500 characters, multiple character fonts and user programmable function keys.

Delta Data Systems Ltd (CW), Swallowfields, Welwyn Garden City, AL7 1JD. Tel: Welwyn Garden 33653.

NOW IN ITS  
FIFTH YEAR

The Continental  
centre for everyone  
interested in using  
computers, mini  
computers, peripherals  
and systems



COMPEC  
EUROPE '80

Centre International Rogier,  
Brussels, May 6, 7 & 8, 1980

10.00 18.00 hrs (May 8) 10.00 16.30 hrs

Meet over 100 suppliers of hardware,  
software and services from many countries.  
Admission is by registration for a fee of BF 200 —  
BUT if the coupon below reaches us by April 8, we  
will send you FREE tickets in advance.

COMPEC EUROPE '80

To: Compec Europe Tickets, IPC Exhibitions Ltd.,  
40 Bowling Green Lane, London EC1R 0NE

Please send me ..... FREE advance registration tickets for Compec Europe '80.

Name .....

Address .....

Country .....

(Applications received after April 8 cannot be accepted)

## ADVANCED FILE DESIGN—Part 6

by Owen Hanson and Norman Revell

## Reducing the effect of synonyms in direct files

WHEN the number of synonyms in a file has been minimised, all that remains is to ensure that those remaining cause as little delay as possible. There are two ways of doing this: 1. Loading the most-referenced records first; and 2. Ensuring that synonyms are quickly retrieved.

**Access frequency loading**  
It is often said that "90% of accesses are to 10% of records" or "80% of accesses are to 20% of records" or some similar split. When this applies, there is clearly a benefit to be gained by loading the most referenced records first.

The size of this benefit in the 80/20 case can be judged from Diagram 1, which appeared in Basic File Design. An interesting

point here is that the benefit increases with increasing bucket size up to about six records per bucket. An analysis of the size of benefit to be expected in any given case is given in 1, a City University Business School working paper.

For the 80/20 case, and bucket sizes of six or more, accesses to synonyms are reduced to one quarter of the figure recorded in the random case. When 90% of the accesses are to 10% of records, buckets of size five or more will show a reduction to one ninth of random access figures.

These results are dramatic, and allow 90% to 95% packed files to give as good a performance as conventionally-loaded

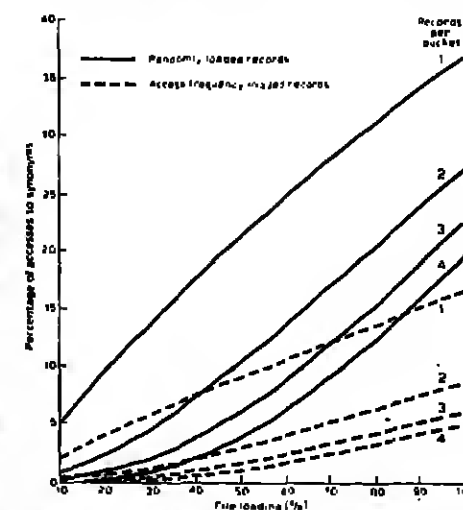


Diagram 1. The effect of access frequency loading (the 80-20 case).

files of 70% to 75% packing. The user will want to know how to get these results, when it is not going to be possible, and any drawbacks involved.

1. Information required. Data on the frequency of accesses to the file has to be obtained. When a file is first set up, a guessimate is as much as can be expected, but data can be collected in one of two ways.

If records are read and then written back, an additional single or double byte field can be added to the record, set up as binary zeroes and incremented each time the record is updated. After sufficient time has elapsed to give a large count in the most referenced records, the file is sorted into descending count field order and reloaded. The counts may be recorded and re-used, or continue. Once it is clear that the access frequency pattern is reasonably stable, the count fields can be used for other purposes.

If the records are only referenced, this method involves an additional rotational delay just to update the count field. In this case it is better to use an auxiliary file, consisting only of record keys and count fields, and probably organised in indexed sequential form, to collect the data. Its small size ensures rapid access. Otherwise the process is just as described above.

2. Unsuitable files. If a file is very variable in access pattern or it is a short cut, this sort of data is not obtainable. The designer will have to accept that the normal conditions of random access will apply.

3. File degradation. Additions to an access frequency loaded file will generally be active, as they are new customers, products and so on. They will certainly be a random mix, and will include a proportion of very active records. This leads to rapid degradation of the file, the extent of which is shown in Diagram 2. The file will still require less accesses to synonyms than a conventionally loaded file, but the advantage grows less as more random additions are made.

Diagrams 3 and 4 show the accesses to synonyms as a result of normal loading, and 60/40, 70/30, 80/20, 90/10 and 90/5 case access frequency loaded files for single and 10 record buckets in the range 65%–100% packing. These are the unbroken lines. Random additions are shown as dashed lines, with the figures on the right showing the packing density from which random ad-

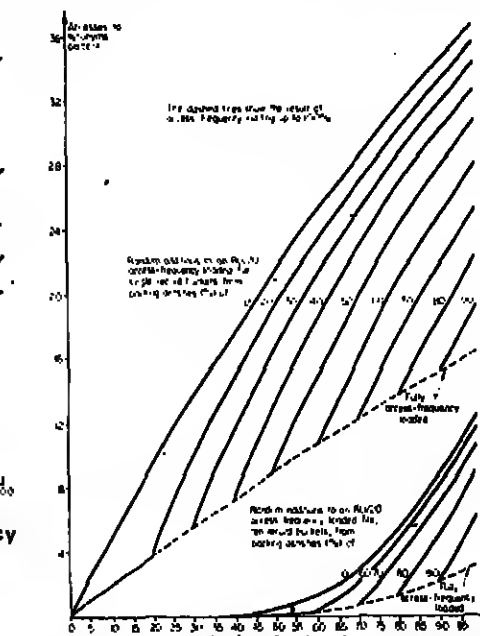


Diagram 2. The effect of bucket size on random additions to access-frequency loaded files.

ditions were made to the 90/10 case. One of these dashed lines, or lines similar to them, will be followed as a result of random additions regardless of the starting point, as they are a family of curves that do not overlap.

Summing up, additions to and deletions from a direct file do not alter the performance of conventionally loaded files, but will degrade an access frequency loaded file. The ideal file for this purpose has a static record set without additions or deletions.

**Synonym retrieval**  
The other area that can improve performance of direct files is that of synonym storage. Three methods of handling synonyms are widely used; these are progressive overflow, chaining and tagging. The last two are shown in Diagram 5.

1. Progressive overflow. Records can be stored in the next available position following their home bucket. This has the advantage that no complex links are required, but means that there is no indication that a record that is not in the home bucket was not detected as an error until the whole file had been searched.

In addition, if a home record in an address with synonyms is deleted a synonym has to be located and put into the home position, otherwise it will appear that the address is free, and no synonyms exist.

2. Chained records. In this case the last home record is linked to the first synonym, the

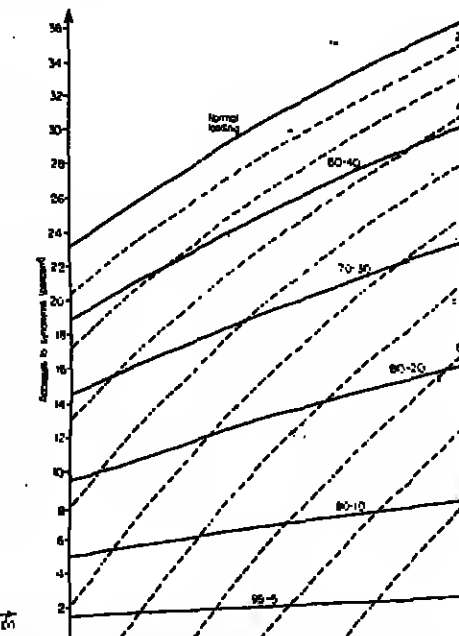


Diagram 3. Single record buckets.

first synonym to the second and so on. Many writers recommend a separate overflow area for chained records, but it is better to store the records using the same location technique as for progressive overflow, but providing link fields.

This method puts a premium on algorithms that avoid large numbers of synonyms for any one address. There is some indication that true randomisation performs better than division in this respect.

Johnson<sup>2</sup> showed that ensuring the minimum length of chains by moving up synonyms into the home bucket markedly improved performance. However, so long as link fields are protected, additions and deletions do not present any particular difficulty.

Most reported work has been carried out as a comparison of chained overflow and progressive overflow.

Diagram 6 shows the results achieved by Lum, Yuen and Dodd (see Part 5) for various bucket sizes and packing densities. As bucket sizes increase, progressive overflow becomes more effective than chaining, even in a separate area (they did not use the prime data area for chained overflow).

The drawbacks of the other two methods have led to the development of

3. Tagged records. In this case reference to synonyms is very rapid, as each overflow record is pointed to directly from the home bucket. The importance of avoiding large numbers of synonyms for a single address is

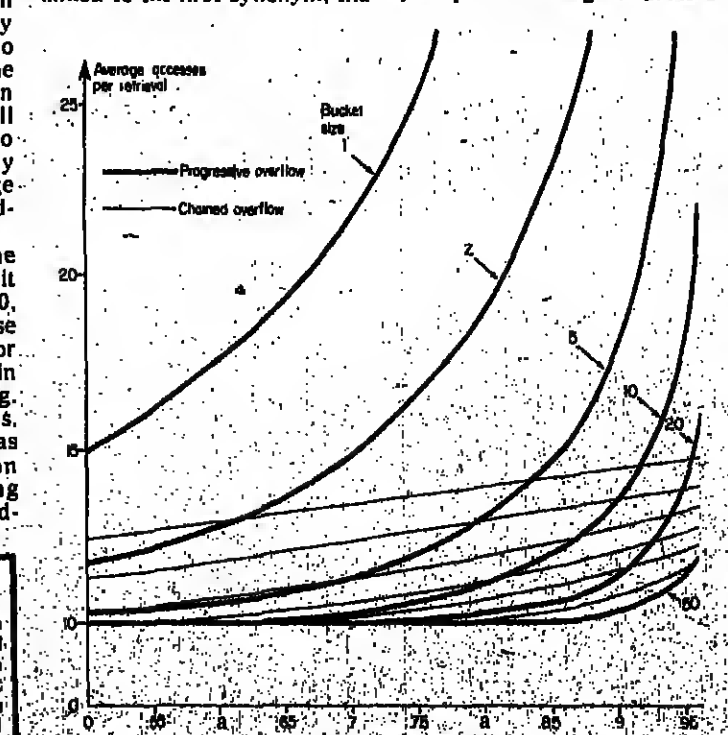


Diagram 6. Results achieved for various bucket sizes and packing densities.

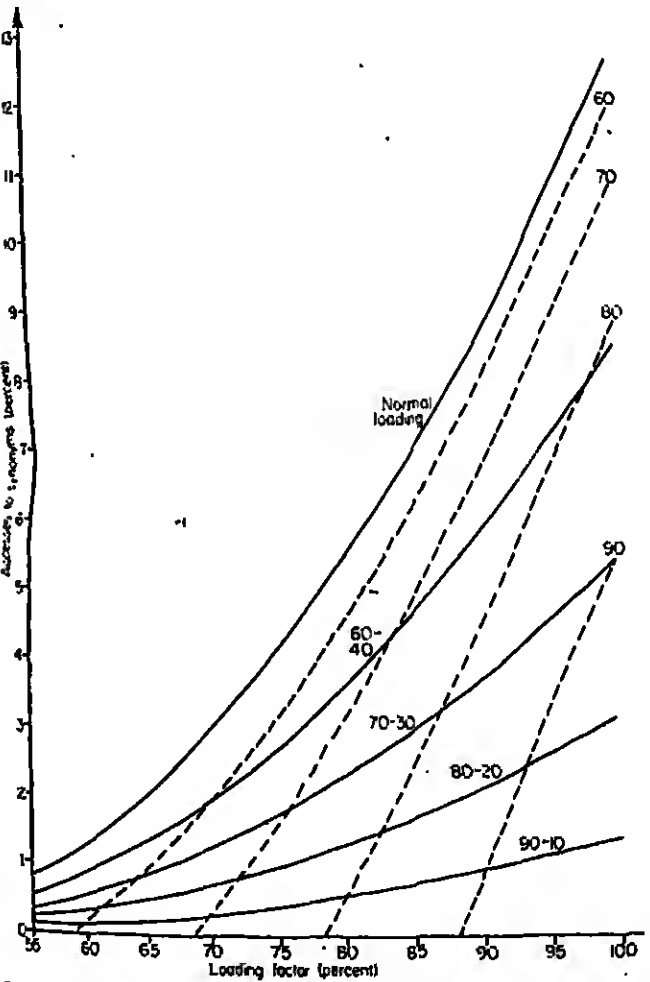


Diagram 4. Ten record buckets.

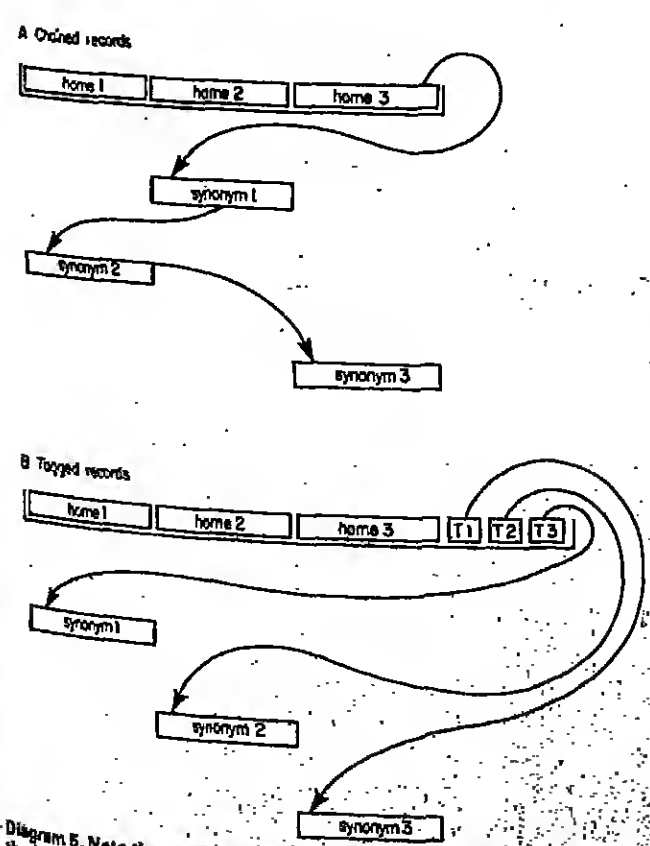


Diagram 5. Note that chained records in A require only a single link field in the home address. Tagged records as shown in B require a link field for every synonym, but avoid following a chain of records.

The City University Business School  
Courses in Systems  
Analysis 1980-81  
MSc in Business Systems  
Analysis and design

This is a full-time one calendar-year course for graduates with data processing experience. The course provides a comprehensive academic and professional grounding in systems analysis and design that combines the practical demands of work in this field with the theoretical knowledge required.

Diploma in  
Systems Analysis

This is a full-time one academic year course for data processing professionals who wish to broaden and improve their practical experience and theoretical knowledge of systems analysis.

For further details on these courses please contact: Admissions Secretary (Systems Analysis), The City University Business School, 22 Goswell Road, London EC1M 7BB. Telephone: 01-253 4029

## CONFERENCES

## Statistical gathering

The fourth symposium on computational statistics, Compstat 1980, will take place at Edinburgh University from August 18-22. The conference should be of interest to both theoreticians and practitioners in the fields of computing and statistics. Papers will be presented by authors from Europe and elsewhere on topics including current methodology used in teaching, research and industry; the relative strengths and weaknesses of common statistical packages and new techniques. It is sponsored by the International Association for Statistical Computing. Details from Compstat 1980, c/o Director, Program Library Unit, University of Edinburgh, 18 Buccleuch Place, Edinburgh.

## Running a plant data system

PROBLEMS encountered in setting up and running computerised systems for plant data will be discussed at an international seminar and workshop to be held in Southampton, Lancashire from April 14-16. The seminar will be conducted by the UK Atomic Energy Authority's National Centre of Systems Reliability and Turkey Software. It should be of interest to professionals at all levels, particularly designers, plant managers and records staff. For details contact: Brian Sayers, NCSR, Wiganaw Lane, Cuddaham, Warrington. Tel: 0925 31744 ext 214.



# Appointments

## THE NEWSPAPER COMPUTER PEOPLE RELY ON

# Appointments

# Knight

## OPERATORS

### Contract Opportunities

If you have a minimum of 2 1/2 years operating experience Rachel Martin and Sham Poll can give you an immediate up-to-date list of UK contracts.

**IBM System 3 Ops** **LONDON**  
Immediate contract. Long and short term requirements. £150 + p.w. Call Sham Poll or Rachel Martin.

**Honeywell level 6 'mini'** **BUCKS**  
April start. Day only 9.5 p.m. Long term contract. £200 + p.w. Ring Rachel Martin or Sham Poll now!

**OVERSEAS OPS**  
If you have a minimum of 3 years experience and an interest in working abroad contact June Aubrey for advice or further details.

**ICL SYS 4/70 & 2980 exp** **OXFORDSHIRE**  
Shift Leads and Senior Ops call us now! Long term contract. April start. Excellent Rates!!! Ring June Aubrey or Sham Poll.

**TERMINAL VDU ops** **GREATER LONDON**  
Various long and short term contracts available immediately. £140 + p.w. Days only. Call Rachel Martin or Sham Poll.

## Payroll Analysts

### Long Contracts-Midlands

Two Analysts or Analyst/Programmers with Payroll experience are required to enhance existing system. Knowledge of UNIPAY would be an advantage, but not mandatory.

## IBM OS + CICS?

### South Yorkshire

Immediate and future contracts for COBOL or ASSEMBLER programmers with CICS experience under OS, who want top rates plus expenses.

## Contracts for Analysts & Programmers

For more information on these and other opportunities in the UK and overseas, you should contact NBL WILLIAMS, DENISE FLEMING or COLIN CHERRY on the number below or (01-408 0290 24hr service).

## IBM Systems Programmers

**LONDON** — DOS/VS and VM/CMS experience to start as soon as possible for initial period of 3 months.  
**SURREY** — MVS with knowledge of TSO/SPF, ASSEMBLER and ideally some database experience.  
**BELGIUM** — DOS/CICS Systems Programmers to take up lucrative 12 month contracts.

## COMPUTER WEEKLY

Classified Department, Gosset House,  
Stamford St, London SE1 9LU

\* Box Numbers: Should be addressed to the box number in the advertisement or to Computer Weekly at the above address.

Classified Rates: £13 per annum.  
19 x 3 cols = £740, 38 x 3 cols = £1,250.  
Half Page (18 x 7 cols) = £1,300.  
38 x 4 cols = £1,600.  
Full Page (38 x 7 cols) = £2,000.

Copy Deadline: 3.30 pm Monday prior  
Thursday publication date. Complete  
advertisements up to 11 am Tuesday. Advanced  
space reservation is advisable.

**LONDON**  
Assistant Classified Manager:  
Chris Price 01-261 0028  
Mark Pulver 01-261 0047  
Ken Walford 01-261 0054  
Neil McDermott 01-261 0061  
Viv Sheratt 01-261 0068  
Dorcas Smith 01-261 0076  
Ian Faux 01-261 0171  
Julia Hannaford 01-261 0192

**MANCHESTER/GLASGOW**  
Owen Kelly 061-872411  
Geoff Aiken 061-872411

**BIRMINGHAM/BRISTOL**  
Stan Harris 021-356 4828

## OPERATORS

### Permanent Opportunities

ALWAYS RELY ON KNIGHTS! June Mogg and June Aubrey are here to give advice and keep you in touch with a variety of permanent opportunities.

**IBM OPERATOR** **KENT**  
18 mths/2yrs experience. Prof. with OS VSI. Good prospects within Company. Excellent Company benefits.  
SALARY: £5,000 neg a.a.s.

**BURROUGH'S 80 mini** **LONDON SW1**  
Excellent position for young person with good keying-in experience. Company prepared to train.  
Hours: 9.15/5.30 p.m.  
SALARY: £ to 5,000 neg a.a.s.

**ICL OPERATOR** **MIDDLESEX**  
ICL 1900 installation require GII + operator. 3 shift system Mon. to Fri. Minimum 18 months - 2 yrs experience. Good company perks.  
SALARY: £ to 6,000 p.a.

**PDP OP** **LONDON EC1**  
Minimum 1 years experience. To operate PDP 11/70 using RSTS/E. Good opportunity to become involved with new department.  
SALARY: £5,000 neg p.a. + bonus.

## Payroll Analysts

### Long Contracts-Midlands

Two Analysts or Analyst/Programmers with Payroll experience are required to enhance existing system. Knowledge of UNIPAY would be an advantage, but not mandatory.

## IBM OS + CICS?

### South Yorkshire

Immediate and future contracts for COBOL or ASSEMBLER programmers with CICS experience under OS, who want top rates plus expenses.

## ICL Contracts

### London + Leeds

First class opportunities exist for Analysts & Programmers with sound 2900 experience in COBOL VME/B and/or IDMS. Long & short term contracts.

## Ventek Experience?

**NORTH LONDON** — Database programmer to start immediately on Major development.  
**HOLLAND** — Database Analyst/Programmer for Systems and Program development project.

**Knight**

Knight Computer Services Ltd.

**01-491 4706**

datascene

## OPERATIONS

**D.P. MANAGER**  
Min. 2 yrs. supervisory exp. + working knowledge of cobol required for small site using Burroughs mini in N.W. London.

**MINI OPS** **£5200**  
Min. 2 yrs. exp. on minis (pref. O.G.) for N.W. London site working 12-hour shifts. Excellent benefits.

**OPS SUPERVISOR** **£5000**  
Responsible for daily running of Burroughs mini and small team of Ops. at small site in Oxon. Days only.

**DATA CONTROL** **£5500**  
Several vacancies at all levels in end around London. Days and Shifts.

**DEC-PDP OPERATOR** **£4500**  
1 yr. experience to work 4-shifts system (no weekends) in City. Good benefits.

**IBM 3031 OS OPERATOR** **£5200**  
Large South London Co. require an operator with approx. 1 year IBM OS experience. Good perks and prospects.

**IBM 370 OS OPERATOR** **£5500**  
1 year's experience required by various sites in Central London and the Home Counties.

**IBM 3031 DOS SHIFT LDR.** **£5600**  
2 yrs. + DOS experience with some JCL experience for 2 Shift working. London installation.

**IBM 370 DOS SENIOR OP** **£8200**  
C London financial site requires operators and Snr. Ops. with 1-2 years' 370 DOS experience.

**UNIVAC 80/30 SENIOR OP.** **£6000**  
City based company seeks experience + maturity for this senior position. 2 yrs. sound knowledge of OS3 essential.

**UNIVAC 1100 SENIOR OP.** **£6200**  
London installation offers excellent perks + benefits. Exec. 8 applicant with very strong knowledge required.

**ICL 1800 SENIOR OP.** **£5500**  
NW-London site offers IBM + GII Possibilities for the right person. Many perks + promotion.

**ICL 2860 OPERATOR** **£5500**  
Latest ICL software DME + VME/B is a must for this forward looking Company! 18 months' exp. required.

**ICL 1900 OPERATOR** **£5200**  
GII Ops. looking to gain IBM OS VSI experience! ICL GII system operations experience necessary.

datascene 01-439 7871

## PLAN YOUR CAREER WITH PRESCOT

### ENGLAND, NEW ZEALAND SOUTH AFRICA & AUSTRALIA

Careful planning often makes the difference between the successful and the not so successful computer career. Prescott Computers understand this because we specialise in overseas computer recruitment and the selection for an overseas post requires extra care by Prescott, employer and employee. We use the same principles of care whether UK only or overseas employment is involved.

We always wish to interview PROGRAMMERS, SYSTEMS ANALYSTS, ANALYST PROGRAMMERS, CONSULTANTS AND SALESPeople for a broad range of clients in England, Australia, New Zealand and South Africa. Salaries range from £4,000 to £18,000 p.a. If you are interested, why not telephone Chad Stolper on 01-434 2898/9 for an informal discussion. Alternatively if you prefer write to him at: PRESCOT COMPUTERS LIMITED, 43 Conduit Street, London W1R 9FB.

## ROCHESTER UPON MEDWAY COUNCIL

### Finance Department (Riverside, Chatham)

## COMPUTER MANAGER

### (3005)

Up to £8,900 p.a. (including shift allowance)

The Council is committed to a comprehensive computer development plan including IOMS, PROSPER and MINIMAC.

The person appointed will be expected to have wide experience in both technical and managerial areas. The post entails leading enthusiastic development and operations teams, liaising with users to develop new applications and taking a leading role in forming the council's computer development policy.

Generous relocation expenses. Progression up to a salary of £10,000 may be achieved on performance appraisal after a period in the post.

Application forms, job description etc. from: Personnel, Council Offices, Frimleybury Hill, Strood, Rochester, Kent. Telephone: Medway 78784 (24-hour Service) (Closing date: 3rd April, 1980)

## PLYMOUTH POLYTECHNIC

### COMPUTER CENTRE

### PRINCIPAL LECTURER OR SENIOR LECTURER PROGRAMME AND PROJECTS LEADER

The Computer Centre has taken delivery recently of a Prime Dual 550 System and is now seeking additional staff. The programme and projects leader will supervise overall the programming team concerned with provision of programming service to students and staff of the Polytechnic and Administrative Services, and so take a leading part in the development of these services. Opportunities will also be provided to initiate or develop research interests. Proven professional experience in computing at a senior level, together with sound academic qualifications are required. Appointment of Principal Lecturer or Senior Lecturer level dependent on the successful candidate's experience, qualifications and abilities.

## SENIOR LECTURER OR LECTURER II USER SET AGE GROUP LEADER

The User Service Group leader will be responsible for the programming team producing and maintaining documentation provided by the centre and information relating to computing service and support provided by the centre. Proven experience in programming is required. Experience in User Service work would be a further advantage. Appointment at Senior Lecturer or Lecturer II level, dependent on the successful candidate's experience, qualifications and abilities.

**SALARY RANGE (UNDER REVIEW)**  
**PRINCIPAL LECTURER** £8,900-£10,300  
**SENIOR LECTURER** £7,000-£8,700  
**LECTURER II** £6,100-£7,300  
Application forms for the above posts to be returned by Friday, 28th April, 1980, can be obtained, together with further particulars from The Personnel Officer, Plymouth Polytechnic, Drake Circus, Plymouth PL4 8AA.

**OS COBOL**  
LONDON  
To £300  
01-402 0995

## Communications

Our Clients are leaders in the computer based communications development field, and they intend to stay in the forefront by recruiting additional Development Engineers and Software Design Programmers to work on some of the most advanced projects in communications technology, which are currently being undertaken. For Development Engineers the requirements are a degree in Electrical or Electronic Engineering, experience of microprocessors, semi-conductors and magnetic memories and high speed digital logic devices. For Software Design Programmers positions you should offer a degree in a numerate discipline, with a background in real time

systems, microprocessors, compilers, software engineering, distributed processing or data communications. These opportunities are for the career-minded — technical management experience will be acquired whilst keeping up with the latest techniques and developments. Opportunities for transfer or assignment to the EEC and US will be available, your base will be in either North or South London, depending on your preferred location.

**£5.5-9.0K**

## Basic +

Programmers with 18 months experience of Basic + on PDP 11's, and a background in commercial applications or production control systems, required by Central London Systems House. The Company is small enough for you to make a significant contribution to their progress, and your efforts will be well rewarded. c. £7K

## Sales Exec

Sales Management position in Manchester area: experience in the computer bureau industry (financial packages) plus ability to motivate and control a sales team required. Travel to various computer centres in North England will be involved. Working for a large, well-established financial institution, you will receive considerable benefits, including concessionary mortgages. £8.5-11K + car + mortgage

## IBM + Siemens

### Challenging Opportunities in Germany

A Multi-national Corporation with offices throughout West Germany has exclusively assigned Matrix to assist in recruiting Analysts, Designers, Analyst Programmers and Programmers for permanent positions in several of their Computer Installations to join new and existing project teams. They currently require personnel with IBM 370/158's under OS/MVS + VSI or Siemens Mainframes/Mainframes (1000 + 2000).

Any T/DBMS experience including UCS, IMS, TOTAL ADABAS etc. in commercial and/or technical fields will be especially welcome. Whilst ability to speak German will be a considerable asset it is not a prerequisite; however, some senior positions will be limited to those who can communicate in the language. In addition to a high salary you will receive 8% holiday bonus and a wide range of fringe benefits not usually offered by British companies. You will be working alongside British and German specialists in your area of expertise. Interviews will be held by our Clients at our London offices during March.

**Salaries: £13-19K + benefits**

## COBOL

Challenging position for COBOL programmers are offered by this leading International Group, specialising in software development and high-level systems. 2 or more years experience on any major manufacturer's mainframe, plus a sound knowledge of your respective operating systems is required to join one of several project teams engaged in a wide variety of commercial and financial on-line and batch applications. You will be given every opportunity to enhance your present skills and to diversify into new areas. Promotion is mainly from within and therefore a well defined career path with management and project leadership positions is established.

**£6.5-8.5K (UK)**

**£13.5-16K (Europe)**

## Consultancy

Systems Consultants to provide pre-sales support for mini-computers and business systems marketed by this leading Computer Manufacturer. Responsibilities include preparing quotations, writing technical proposals, running Client demonstrations and presentations. The Company is based in Herts, relocation expenses will be available where necessary, an excellent benefits package is provided. c. £11K

## Switzerland

Software Systems Designers and Programmers/Analysts to form a team working on a telephone switching system for speech and data. 3-5 years in software development, knowledge of Macro 11 and RSX 11D required. You will be involved in software design, programming and test methods. Spoken German would be a considerable advantage. to £18K

**MATRIX**

D.O.E. Lic. No. SEIA 4127

10 Grenville Place  
London SW7 4RW  
01-373 3063

to 8.30 pm 7 days a week





Variety  
Responsibility  
Career Opportunities  
High Salary  
Recognition



## Unilever Computer Services Limited

Unilever Computer Services employs some 700 data processing professionals, and is one of the top three computer services companies in the United Kingdom. It has affiliations with a similar major U.S. company, and as part of the Unilever Group it enjoys the financial backing of an organisation which has an annual turnover of around £10,000,000,000.

Unique within the industry, U.C.S.L. provides computer services based on a total range of capabilities; main-frame processing, R.J.E., time-sharing, on-site minis, micros, network facilities and applications software development. Integrating and developing these services is one of the largest and most professional technical services groups existing in Europe. We are seeking to enhance this group by recruiting the following people...

## Business Systems Analysts £8000-10,000

London & Home Counties - Sussex - Manchester

Working within the systems group but having direct contact with both the sales force and customers the business systems analyst holds one of the key positions in the company. With both DP systems analysis and business systems analysis experience he is actively involved in pre-sales negotiations and post-sales development and implementation on a wide variety of projects.

**PRE-SALES** The business systems analyst will liaise with prospects staff in order to produce: feasibility studies, proposals and systems specifications.  
**POST-SALES** He will assume responsibility for all or part of the development and implementation of the system.

We are looking for people with experience in large IBM software compatible installations who want to join the most professional and fastest growing Computer Services bureau in the U.K. However, all good systems analysts will be considered.

Company benefits include free BUPA membership, expense account, five weeks holiday and genuine career development opportunities.

For further details telephone or write to Kevin McCourt, 123 New Bond Street, London W1Y 0HR 01-408 1670 quoting reference 3337.

## Regional Systems Manager to £13,000 and car Sussex

This is a position which requires the highest skills, both in terms of man management and the ability to control the development and implementation of systems on both IBM and IBM compatible equipment.

Reporting to the Regional General Manager, the Regional Systems Manager will have full budgetary control of, and responsibility for, all functions performed by his department. He will be involved in the recruitment, training and development of his staff who provide both pre-sales support and system development and implementation services as required.

The ideal applicant will be aged 30-40, and have at least 10 years data processing experience. He will have a proven ability to motivate others, make decisions under pressure and co-ordinate the management of a number of large projects. A thorough knowledge of commercial systems and the ability to communicate lucidly both verbally and in written form is essential.

Company benefits include free BUPA membership, expense account, five weeks holiday, etc. If you feel you have the necessary qualities and abilities and would like to apply for this senior position then telephone or write to Kevin McCourt, 123 New Bond Street, London W1Y 0HR 01-408 1670 quoting reference 3338.

contracts for operators

### CoOperators

VLI group

Below we give a selection of our requirements.

IBM OSVS 1 CICS — Scotland  
JCL Writers and Operators  
Honeywell — all machines and systems  
Univac 90/30 OS 3 — Home Counties

In addition, we have many more immediate short and long term requirements for experienced and trainee operators.

For full details of all our contract assignments  
Ring CoOperators today on 01-836 8411

### BOX Nos.

Box number replies should be addressed to:

Box No. ....  
c/o Computer  
Weekly  
Dorset House  
Stamford Street  
London SE1 9LU

### CICS COBOL

£300+

01-402 0995

contracts for programmers and analysts

Initial Contract Periods are normally for 1 year

### Software & Technical

**S. Germany — IMS, Sytama Software** £600+  
Major IBM installation involving Tuning, Modification, Enhancement & Generation. Some German useful.

**S. Germany — Graphica Design** £500+  
To develop new T.V. / Picture processing system.

**S. Germany — Pascal Compiler** £500+  
Design & Development of new Pascal Compiler.

**C. Germany — MVS, Sytama Software** £500+  
Support Tuning, Generation etc. MVS, TSO, JES 2. Some German preferred.

**S. Holland — Mini/Micro Systems** £450  
Analyst Programmers for development of Real Time/On-Line automation & control systems, Networks etc.

**S. Holland — MVS Systema Software** £500  
Support & development in large installation.

**Midlands — 4080, Pascal/Babbage** £280  
Analyst Programmers to work on Control Systems.

**Surrey — Avionics/Simulation** £270  
Development of R.T. Avionics/Reider Systems.

### Commercial

**Middle East — IMS - MK4, PL1 or COBOL** £450  
Analyst Programmers with large IBM exp. for major DB/DC install. Excell. tax free package.

**Hong Kong — ICL 2960 COBOL** £300+  
Senior Programmers — single elects. Any COBOL considered. Local experience paid.

For further details please contact Roger Allington (day/evening)  
OCC Contract Personnel  
1 Shootersway Park, Berkhamsted, Herts. HP4 3NX

Berkhamsted (04427) 2299

### North West:

Ring 061-491 1666 or mail the coupon.

IBM CICS COBOL Applications Programmers  
IBM CICS DL1 DOS/VS & OS Programmers  
IBM IMS COBOL Programmers  
IBM Systems Programmers (long contract — package evaluation)  
Univac ASSEMBLER 9000 series Programmers  
FORTRAN Programmers (scientific application)  
Honeywell L66 IDS/TDS COBOL Programmers  
Honeywell L66 Programmers — all levels  
Texas Instruments 990 Programmers  
SYBOL Programmers (commercial experience)

### Scotland:

Ring 0532-34941 or mail the coupon.

IBM IMS COBOL Programmers  
IBM DOS COBOL Programmers  
IBM OS VS Systems Programmers  
PDP11 RSX11D Software Programmers

### North East:

Ring 0532-34941 or mail the coupon.

IBM DOS Systems Programmers  
IBM PL1 & ASSEMBLER Programmers  
IBM Databasa Designers  
IBM TCAM Systems Programmers  
ICL 2960 VMEB Systems Programmers  
DEC PDP RSX11 Systems Programmers  
PDP11 MUMPS Programmers  
Honeywell L66 Programmers — all levels

Please provide information about contract assignments.

North West ☐ North East ☐ Scotland ☐  
Name \_\_\_\_\_ Tel. Nos. \_\_\_\_\_  
Address \_\_\_\_\_ (Day) \_\_\_\_\_  
(Ev/Wkd.) \_\_\_\_\_

Mail (no stamp) to FREEPOST, COMPUTER PEOPLE NORTH  
Sovereign House, Stockport Rd. Cheadle, Cheshire. SK8 2YD

### Systems Development Manager/Sales Manager

AGS is an American systems development company establishing an office in the London area. Now in our 13th year, we provide services in commercial systems development, programming, systems training, mini/micro information systems, communications and engineering. We are seeking a Manager (m/f) to participate in establishing this office, recruit technical personnel for the U.K. and our U.S. Offices, and provide sales and technical support. Prior consulting experience is an advantage. Salary is commensurate with experience plus a bonus based on meeting business objectives. An excellent benefits package includes non-contributory life insurance, holidays, and sick pay scheme. If you have the qualifications and the desire for this ground floor opportunity please David Levine for interview 01-722 7711 between 10 am-6 pm, U.S. Office, New Jersey, New York, California, Connecticut, Colorado, Illinois, Indiana, Massachusetts.

AGS

### YORKSHIRE WATER AUTHORITY SOUTHERN DIVISION

### COMPUTER OPERATIONS SUPERVISOR

GS (£5,421-£5,905)

Applications are invited for the above post based at Castle Market Building. The successful candidate will be responsible for the effective control of the Computer Operations Section including allocating and checking work, maintaining the scheduled timetable of computer operations, training the live operations staff, duties include operating the ICL 7803 computer terminal which is connected to the Authority's ICL 2970 computer located at Bradford, and data preparation equipment as required. During the next few months it is planned to replace the existing Data Sciences series 21 key to diskette and terminal equipment and experience of this or similar equipment would be advantageous. Candidates should have proven experience in self supervision and operation of computer terminal and data preparation equipment.

Applications, quoting Ref. No. 814/80 and stating age, qualifications and experience, should be sent to the Chief Officer, Yorkshire Water Authority, Southern Division, Castle Market Building, Exchange Street, Sheffield, S1 1GG. To arrive not later than March 21, 1980.



## BUCKS, W'TON, S. STAFFS REDDITCH, WORCS, KENT

To £8,000 PROGRAMMERS WOLVERHAMPTON W222  
Basic+ or any Mini Language — commercial applications.  
To £7,000 ANALYST/PROGRAMMERS WOLVERHAMPTON W222  
Basic+ and commercial systems — potential Team Leaders required.  
To £7,000 ANALYST/PROGRAMMER WOLVERHAMPTON W227  
Graduate or equivalent + PL1 or Cobol for Database/Real Time work.  
To £7,800 ANALYST/PROGRAMMER WOLVERHAMPTON W222  
Preferably experienced in safety/personnel systems.  
To £7,800 ANALYST/PROGRAMMERS KENT W224  
Preferably ICL Cobol and some commercial systems background.  
To £7,000 SENIOR PROGRAMMER ST. STAFFS W220  
About three years' Cobol, preferably in Structured Programming.  
To £7,000 ANALYST/PROGRAMMER REDDITCH W208  
Two years' RPGII and some analysis in commercial background.  
To £8,000+ ANALYST WORCS. W207  
Software House - Programming background. Commercial packages.  
£7,000 + Car PROJECT LEADERS WOLVERHAMPTON W230  
Several years' Mini experience — commercial applications.  
£8,000 PROGRAMMER WOLVERHAMPTON W231  
To work on packaged commercial systems — Mini Languages.  
£9,000 + Car SENIOR PROGRAMMER BUCKS W232  
Must have Univac 90/30 Cobol and preferably Assembler — Removal expenses.  
£8,000 PROGRAMMER BUCKS W233  
Preferably Univac Cobol for On-Line installation.

## BIRMINGHAM AND WEST MIDLANDS

£8,000 PROGRAMMERS BIRMINGHAM 5/531  
Software House using ICL Cobol, two years+ experience.  
To £9,000 PROGRAMMERS/ANALYSTS BIRMINGHAM 5/532  
Cobol experience with some analysis — Bureau environment.  
C. £8,800 OPERATOR WEST MIDLANDS 5/534  
Operator to work permanent afternoon/evening shift. One year's experience.  
To £9,500 TECHNICAL MANAGER BIRMINGHAM 5/538  
Ogreas standard. Good OP background. Supervisory abilities.  
£7,500 PROJECT LEADER BIRMINGHAM 5/538  
IBM experience, good track record in DP. Leadership skills.  
C. £8,500 SYSTEMS ANALYST BIRMINGHAM 5/537  
Three years plus analysis experience — IBM background. Commercial applications.  
C. £9,000 SENIOR PROGRAMMERS BIRMINGHAM 5/538  
Two years or more Cobol experience — commercial applications.  
C. £9,000 SYSTEMS MANAGER BIRMINGHAM 5/538  
Leadership skills for financial applications.  
£3,700+ OPERATOR WEST MIDLANDS 5/540  
Three shifts — IBM hardware. Progression opportunities.  
C. £8,500 ANALYSTS BIRMINGHAM 5/541  
IBM hardware. Database. Financial applications.  
C. £8,000 PROGRAMMER BIRMINGHAM 5/542  
Burroughs programming experience. Financial applications.  
£5,500 ANALYST WEST MIDLANDS 5/528  
Opportunity for a Programmer to move into analysis. ICL hardware.  
£4,500 JUNIOR PROGRAMMER WEST MIDLANDS 5/527  
One year's experience in programming using Cobol. Manufacturing applications.

## EAST MIDLANDS

To £7,500 PROGRAMMER COVENTRY EM685  
1 year + Cobol experience. Manufacturing environment.  
£Negotiable SYSTEMS ANALYST COVENTRY EM706  
Minimum 2 years' Analysis experience. Commercial background.  
To £8,500 ANALYST/PROGRAMMER COVENTRY EM674  
At least 2 years' Analysis experience, knowledge of Cobol.  
£Negotiable PL1 PROGRAMMER COVENTRY EM688  
Must have PL1 experience. Manufacturing environment.  
£Negotiable SYSTEMS ANALYST COVENTRY EM682  
At least 3 years' Analysis experience. Product Support area.  
£Negotiable PROJECT LEADER LEICESTER EM672  
At least 5 years' D.P. experience. Project co-ordination — user environment.  
£Negotiable SYSTEMS ANALYST LEICESTER EM681  
Analysis experience and knowledge of Cobol. Support Analyst role.  
C. £7,500 SENIOR PROGRAMMER LEICESTER EM687  
Five years' Cobol experience. Mini-Computers.  
C. £8,000 PROGRAMMER LEICESTER EM684  
Two years' Cobol experience. Manufacturing environment.  
C. £7,000 SYSTEMS ANALYST OERBY EM703  
Analysis experience. Database and On-line Systems Design. Manufacturing environment.  
To £8,000 PROGRAMMER NORTHAMPTON EM686  
Two years' Cobol experience.  
£3,000-£4,000 JUNIOR PROGRAMMER NOTTINGHAM EM702  
Some IBM Cobol experience.

OVER 50 NEW JOBS BEING REGISTERED WEEKLY  
INTERVIEWS—ANY TIME—WALK IN BETWEEN  
9 a.m.-5.30 p.m.

EVENINGS AND WEEKENDS BY APPOINTMENT  
CENTRAL LOCATION. REVERSE CHARGE CALLS  
ACCEPTED  
FREEPOST—BLACKWOOD ASSOCIATES, FREEPOST  
BIRMINGHAM B2 4BR

**Blackwood Associates**  
Recruitment Consultants

26 Waterloo Street, Birmingham B2 5TJ.  
Telephone: 021-233 2921 (24 hr. service)

A Member of the GPS Group of Companies.

contracts

Computer People  
Midlands

Contracts for Analysts & Programmers  
in the Midlands, Avon & Wales.

TO ALL CONTRACTORS  
LIVING IN OR NEAR:

SHREWSBURY	TELFORD	STAFFORD
CANNOCK	BURTON	LICHFIELD
DERBY	NOTTINGHAM	LEICESTER
WALSALL	WOLVERHAMPTON	THE BLACK COUNTRY
COVENTRY	LEAMINGTON	REDDITCH
SWANSEA	CARDIFF	NEWPORT
WORCESTER	GLOUCESTER	STRATFORD
NORTHAMPTON	BRISTOL	BIRMINGHAM

ARE YOU TIRED OF BEING  
A RALLY DRIVER?

Computer People Midlands have 7 consultants who are in regular contact with all major DP sites in the above areas.

If you, your family (or even your bank manager) would like to see you spending less time in the car and more time at home, then find out about a LOCAL contract by phoning Wendy, NOW.

Ring 021-643 2317 or mail the coupon.

Please provide information about contracts in the Midlands.

Name \_\_\_\_\_ Tel. No. \_\_\_\_\_  
Address \_\_\_\_\_ (Day) \_\_\_\_\_  
(Ev/Wkd.) \_\_\_\_\_

Mail (no stamp) to FREEPOST, COMPUTER PEOPLE MIDLANDS,  
Alpha Tower, Birmingham, B1 1BR

## ON-LINE DISTRIBUTED SYSTEMS

ON HONEYWELL L66 AND L6's ON MERSEYSIDE

## COBOL PROGRAMMERS c. £6K

You should have at least 2 years' experience, preferably with Honeywell COBOL, IDS and TDS, but this is not essential as training will be given

## SENIOR PROGRAMMERS c. £7.5K

You should have at least 3 years' COBOL experience, and must have some knowledge of IDS and TDS.

## SYSTEMS PROGRAMMERS c. £8K

You should be experienced on mainframe or mini system software and have used at least one assembler language. Experience with Honeywell L66 GCOS and GMAP, NPS, or L6 assembler would be an advantage but is not essential as the necessary training will be given.

### INTERESTED?

If you are interested in any of the above vacancies, enjoy working in great project teams and are looking for a challenging on-line and batch systems environment, then for details

RING TREVOR WEBB OR JOHN WARD ON  
051-523 7100 (reverse charges if you wish)

AT — Allied Bakeries Ltd., bakers of Sunblest bread, acknowledged by Honeywell as leaders in distributed systems development. The Company Centre is based on the outskirts of Liverpool, close to the end of the M67 motorway. We are within easy commuting distance of Southport, the Wirral and Cheshire countryside.

RELOCATION assistance will be available should it be necessary for you to move into the area, which is in easy reach of both the sea and the airport.

# MYRIAD

## SYSTEMS TECHNOLOGY

## HARDWARE DESIGN

### BERKSHIRE

We are seeking additional senior system design engineers to join a small team concerned with the application of new technology to mainframe computer systems architecture.

Our client is a major force within the computer industry and is therefore continually investing extensively in an on-going development process. The persons presently required will be involved with the definition and design of future systems aimed at one of the most competitive sectors of the marketplace — an area in which the company is presently particularly successful.

### Starting Salaries: £9000-£12500

The successful candidates will be able to offer significant system design experience with a strong hardware bias. They should be conversant with the current and projected ranges of INTEGRATED CIRCUITS and should also offer previous experience with the technology of hardware development i.e. MULTI-LAYER PRINTED CIRCUIT DESIGN, BACK-PLANE and INTER-CONNECT TECHNIQUES, LOGIC DESIGN.

These are senior appointments within a team of highly-qualified systems designers and the group as a whole will play a key role in the organisation's continuing success. Commencing salaries in a range from circa £9000 to circa £12500 reflect the scope of the positions available and the excellent opportunities for individual career progression. Additionally the company will offer a range of fringe benefits, including, where applicable, a comprehensive relocation package.

REF SW1/1303/CW

# BUSINESS ANALYST OPPORTUNITIES

## BASED CENTRAL LONDON

UP TO £10,000

Our client, a highly successful commercial group with interests in Advertising, Films and Finance is seeking to expand their Group Services Business Analyst team to provide additional consultancy services for the multi-faceted business activities of the Group.

These positions offer applicants the opportunity to provide a full consultancy service involving the definition and design of both computer and non-computer systems. The successful candidates can also look forward to performing a project control role and liaising with external computing resources.

The people appointed will be required to demonstrate a sound commercial analysis background and will possess a strong business awareness and appreciation of the current trends in technology in both the business and computer spheres. Experience of IBM hardware, on-line and database systems development will be useful additional attributes for these posts.

Opportunities exist for travel to Group companies in the UK and Overseas and the negotiable commencing salary is further supported by a package of benefits including luncheon vouchers and a non-contributory pension scheme.

REF: NW1/1303

## MYRIAD APPOINTMENTS LIMITED

30 Fleet Street London EC4Y 1AA Telephone 01-353 0981 24 hours

01-353 0981



# MYRIAD

## WE'RE LOOKING FOR SOMEONE SPECIAL PRODUCT CONSULTANT

U.K. BASED

- ★ DOS/VS EXPERTISE
- ★ KNOWLEDGE OF SYSTEMS SOFTWARE
- ★ CUSTOMER SUPPORT EXPERIENCE
- ★ IBM ASSEMBLER USEFUL

- ★ UNUSUAL CAREER
- ★ C.£10,000 + CAR
- ★ SENIOR APPOINTMENT
- ★ INTERNATIONAL TRAVEL

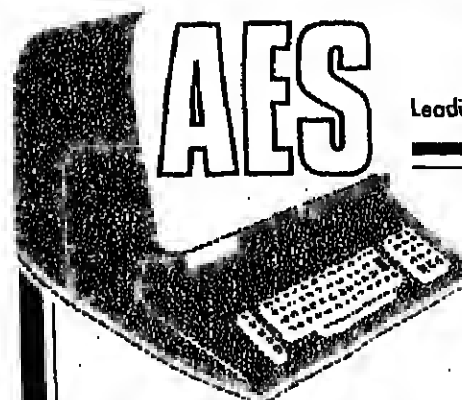
This is a unique position within a world-wide organisation able to offer career advancement with a difference. If you feel your job lacks challenge, your ideas are being stifled and your DOS/VS knowledge is never extended, this could be your chance to prove your worth and be paid your worth!

To cope with the ever-increasing demand for its products and to maintain its leading position in the software field, the Company has ambitious expansion plans, thus presenting the person appointed with considerable scope for career progression. A good starting salary is further enhanced by a company car and first-class conditions of employment, including generous relocation expenses where appropriate.

REF S2/1301

MYRIAD APPOINTMENTS LIMITED

30 Fleet Street London EC4Y 1AA Telephone 01-353 0981 24 hours



Leading Manufacturer of Wordprocessing Systems requires

### technical support manager and software systems engineers

AES is a strong and rapidly expanding wordprocessing company that is part of the Canada Development Corporation. Their European Headquarters based in Brussels, Belgium, offer many opportunities for career development within a young, dynamic international team.

**technical support manager** Responsible for training, liaison and issuing of engineering documentation to the distributors and direct sales operations.

**software systems engineers** To develop application software for wordprocessing systems.

**the successful applicants** will require a university degree, with emphasis on data processing (GRAD ENG., DIPL. ENG., BSC OR MSC) and fluent English. Two years experience in a similar position would be preferable. Knowledge of assembler and experience with compilers, Intel 8080 and Z80 microprocessors would be an asset.

Interested parties should send their curriculum vitae to Top Jobs who will treat it in the strictest confidence. Reference AES11

Top Jobs s.p.a. Bd M. Lemonnier 91-97, 1000 Brussels. Telephone 02-512 98 72



The International Atomic Energy Agency, Vienna, Austria, seeks for its Computer Section (IBM 370/3032 MVS) an

### APPLICATIONS PROGRAMMER/ANALYST

for systems analysis and programming in information and technical applications. Experience with PL/I on large IBM 370 and strong interest in the data base management techniques required. University degree and computer skills - preferably in systems programming. Two years' annual emoluments US\$24,000 approx. additional allowances for married. Travel and removal expenses paid. Six weeks annual leave. Send curriculum vitae under VN 12/80 to Division of Personnel, International Atomic Energy Agency, P.O. Box 100, A-1400 Vienna, Austria.

CONTRACT VACANCIES IN THE MIDLANDS AND SOUTH  
**FREELANCE PROGRAMMERS & ANALYSTS**  
COMPETITIVE RATES  
REGISTER NOW WITH THE SPECIALISTS  
PHONE 021-843 5118 (24 hours) to register or send your c.v. to:  
PROJECT RECRUITMENT LIMITED  
11th Floor, Suite 1105, Holloway Circus  
Birmingham B1 1ED. (Telex No. M 887)  
R A member of the Cloud Computer Systems Group (14)

PERMANENT AND  
CONTRACT STAFF  
LONDON & S.E.  
ENGLAND  
BEST PAY &  
FUTURE  
Phone  
DELTA STAFF  
AGENCY  
(0702) 339616

DL/1

To £300

LONDON  
01-402 0995

0702-615551

## TASK FORCE

0782-410217

### PERMANENT RECRUITMENT

#### NORTH

IBM  
HONEYWELL 66

Programmers & System Programmers  
Programmers, System Programmers  
& Technical Analysts

#### UNIVAC

ICL 2900

All levels  
Senior Programmers & Project Leaders

#### MIDLANDS

IBM

NCR

PDP

Analysts & Analyst Programmers  
Programmers  
Programmers

#### SOUTH

IBM

HONEYWELL 66

All levels  
Programmers, Analyst Programmers  
& Analysts

UNIVAC  
ICL 1300

All levels  
Programmers, Programmer Analysts  
& Project Leaders

### DELAYING CAN DAMAGE YOUR WEALTH

## A.M. TASK FORCE LTD

2 Southchurch Road  
Southend-on-Sea  
Essex SS1 2NE

Tel. Southend-on-Sea  
(0702) 515561/2  
Telex: 995042

Talk to Lyn, Kim, Tony or John

44 Kingsway  
Stoke-on-Trent  
Staffordshire ST4 4JH  
Tel. Stoke-on-Trent  
(0782) 410217/8

Talk to Jan, Paul, Chris or John

OUR REPUTATION TELLS ALL

### LIVERPOOL AREA

#### ANALYSTS

(DR/783) 18 + months IBM experience to £6500  
(DR/784) 24 + months IBM/ICL background to £7500  
(DR/785) 24 + months ICL environment to £7000  
(DR/786) Senior Analyst ICL environment c £7000  
(DR/787) 24 + months IBM experience to £5500  
(DR/788) 18 + months ICL experience to £5000  
(DR/789) 18 + months IBM background to £5400  
(DR/790) 24 + months ICL experience to £5500  
(DR/791) 18 + months ICL orientated to £5000  
(DR/792) 24 + months IBM environment to £5300  
(DR/793) 18 + months IBM orientated c £5000  
(DR/794) 24 + months IBM (CICS) c £5500  
(DR/795) Firm ICL background c £5500  
(DR/796) Firm experience (any mainframe) c £5500  
(DR/797) Firm IBM background c £6000

#### PROGRAMMERS

(DR/778) 18 + months IBM CICS experience c £5000  
(DR/779) Firm IBM COBOL/ASSEMBLER to £5500  
(DR/780) 12 + months ICL COBOL to £5200  
(DR/781) 18 + months IBM experience to £5000  
(DR/782) 18 + months ICL COBOL to £5400  
(DR/783) 24 + months IBM/ICL COBOL to £7000  
(DR/784) 24 + months ICL COBOL to £5000  
(DR/785) Senior Programmer IBM environment to £4400  
(DR/786) 12 + months IBM COBOL to £5500  
(DR/787) 12 + months IBM COBOL to £5500  
(DR/788) 18 + months large mainframe (COBOL) to £5000  
(DR/789) 18 + months ICL COBOL c £5300

### MANCHESTER AREA

#### ANALYSTS

(DR/790) 12 + months any mainframe to £5300  
(DR/791) 24 + months ICL environment to £5200  
(DR/792) 24 + months IBM background to £7000  
(DR/793) Firm ICL background (degree required) c £ Neg.  
(DR/794) 18 + months IBM environment to £6600  
(DR/795) 24 + months ICL background to £5500  
(DR/796) Sales support (will travel) to £7500  
(DR/797) IBM background to £5000  
(DR/798) 18 + months mini background c £ Neg.  
(DR/799) Experienced IBM analysts to £7000  
(DR/800) Senior IBM positions to £7800  
(DR/801) Experienced analysts (any mainframe) to £7000  
(DR/802) ICL background to £5400  
(DR/803) 20 + months any background to £6000  
(DR/804) 18 + months IBM environment to £6600

#### PROGRAMMERS

(DR/806) Sales Support Position c £ Neg.  
Datapoint experience required + car  
(DR/808) Senior position IBM COBOL/ASSEMBLER to £7000  
(DR/807) 12 + months ICL COBOL c £ Neg.  
(DR/808) 18 + months IBM systems experience to £7000  
(DR/809) 24 + months ICL environment c £5500  
(DR/810) Sales support (will travel) to £7000  
(DR/811) 3 + years IBM COBOL/ASSEMBLER to £7000  
(DR/812) 24 + months ICL COBOL c £ Neg.  
(DR/813) Senior IBM positions to £5000  
(DR/814) IBM assembly position to £5500  
(DR/815) 18 + months any mainframe c £ Neg.  
(DR/816) 18 + months COBOL c £5500  
(DR/817) 12 + months ICL COBOL c £4700  
(DR/818) Experienced IBM COBOL/ASSEMBLER c £6000

### NORTH WEST CONTACT

EDWARD BRUSH

### AND MANY MORE!

Interested? Send coupon FREEPOST or phone quoting relevant reference

NAME \_\_\_\_\_ AGE \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
LANGUAGES USED \_\_\_\_\_  
PHONE: HOME \_\_\_\_\_  
BUSINESS (will be used discreetly) \_\_\_\_\_  
YRS ANALYSIS \_\_\_\_\_ YRS PROGRAMMING \_\_\_\_\_  
MACHINES USED \_\_\_\_\_  
JOB SOUGHT \_\_\_\_\_ REF No. \_\_\_\_\_  
SALARY \_\_\_\_\_ SALARY REQUIRED \_\_\_\_\_ CW/15/2



DATA RESOURCES AGENCY,  
P.O. BOX 83, 8th FLOOR,  
COPTHALL TOWER HOUSE,  
HARROGATE HG1 1TS  
TELEPHONE HARROGATE 55311

RECRUITMENT AGENCY

24 HOUR ANSWERING SERVICE

### CAMBRIDGESHIRE AREA

#### ANALYSTS

(DR/818) 3 + years Project leader, commercial systems to £9000  
(DR/820) 3 years database design + administration to £9000  
(DR/821) 2 + years commercial plus major projects experience to £8000  
(DR/822) 18 + months (alt data processing background) to £7000

#### PROGRAMMERS

(DR/823) 2 + years systems programmer PL/1, CICS, DOS to £8000  
(DR/824) 1 year minimum - all grades PL/1, or COBOL to £8000

### CAMBRIDGESHIRE CONTACT

ROGER PICKIN

### LEEDS/BRADFORD AREA

#### ANALYSTS

(DR/825) 4 + years (including programming background) c £7000  
(DR/826) 2 + years financial systems - IBM site c £7000  
(DR/827) 2 + years commercial systems c £5500  
(DR/828) 18 + months (plus programming background) to £5500  
(DR/829) 2 + years financial systems (including programming background) to £7500  
(DR/830) 2 + years (including ASSEMBLER programming background) to £7500  
(DR/831) 2 + years commercial systems (with programming background) c £ Neg.  
(DR/832) 3 + years manufacturing systems c £7000

#### PROGRAMMERS

(DR/833) 24 + years COBOL c £6000  
(DR/834) 12 + months IBM COBOL c £ Neg.  
(DR/835) 2 + years COBOL on any mainframe c £5500  
(DR/836) All levels PDP BASIC to £6000  
(DR/837) 18 + months ICL COBOL - 2900 site to £5500  
(DR/838) 12 + months COBOL on any hardware to £5500  
(DR/839) 2 + years NCR COBOL c £ Neg.  
(DR/840) 3 + years COBOL supervising - ICL site to £5500  
(DR/841) 2 + years ICL COBOL c £5500  
(DR/842) 18 + months COBOL on any mainframe c £5500  
(DR/843) 2 + years ICL COBOL c £ Neg.

### TYNE & WEAR AREA

#### ANALYSTS

(DR/844) 18 + months commercial systems to £5500  
(DR/845) 2 + years financial systems to £7250  
(DR/846) 3 + years manufacturing systems c £7500  
(DR/847) 2 + years (including COBOL programming background) c £8800  
(DR/848) 3 + years manufacturing systems c £ Neg.  
(DR/849) 4 + years manufacturing systems to £8500  
(DR/850) 2 + years production systems to £7500  
(DR/851) 2 + years (including programming background) c £7000

#### PROGRAMMERS

(DR/852) 2 + years COBOL on any hardware c £5500  
(DR/853) 12 + months IBM COBOL c £ Neg.  
(DR/854) 3 + years PL/1 c £5500  
(DR/855) 2 + years IBM COBOL to £6500  
(DR/856) 3 + years ICL COBOL c £6000

### GLASGOW & WEST OF SCOTLAND AREA

#### ANALYSTS

(DR/857) 3 + years manufacturing c £7000  
(DR/858) 2 years commercial systems to £5500  
(DR/859) 2 years IBM preferred to £5500  
(DR/860) 2 + years analyst programming any machine c £6300  
(DR/861) 3 years general commercial systems c £6500  
(DR/862) 18 months analyst programming to £6000

#### PROGRAMMERS

(DR/863) 3 + years IBM systems programming c £7500  
(DR/864) 4 + years CICS, PL/1 to £8500  
(DR/865) 2 years IBM 370 systems programming c £5500  
(DR/866) 3 + years COBOL, any hardware c £7000  
(DR/867) 3 years COBOL, any mainframe to £5750  
(DR/868) 3 + years COBOL IBM preferred to £7250  
(DR/869) 18 + months COBOL, IBM, ICL c £5800  
(DR/870) 3 + years PL/1 c £7750  
(DR/871) 2 + years IBM COBOL c £ Neg.

### YORKS, NORTH EAST AND SCOTLAND CONTACT

CATHY SCOTT

# DATA

to this 12/80



# ANALYSTS

## All This Could Be Yours:

- Starting salaries to £9,000
- Profit share
- Subsidised mortgage (after 1 year)
- Non-contributory pension
- 24 days holiday
- Interest free season ticket loan
- Cheap personal loans
- Subsidised lunches
- Sports and social club

## And All This:

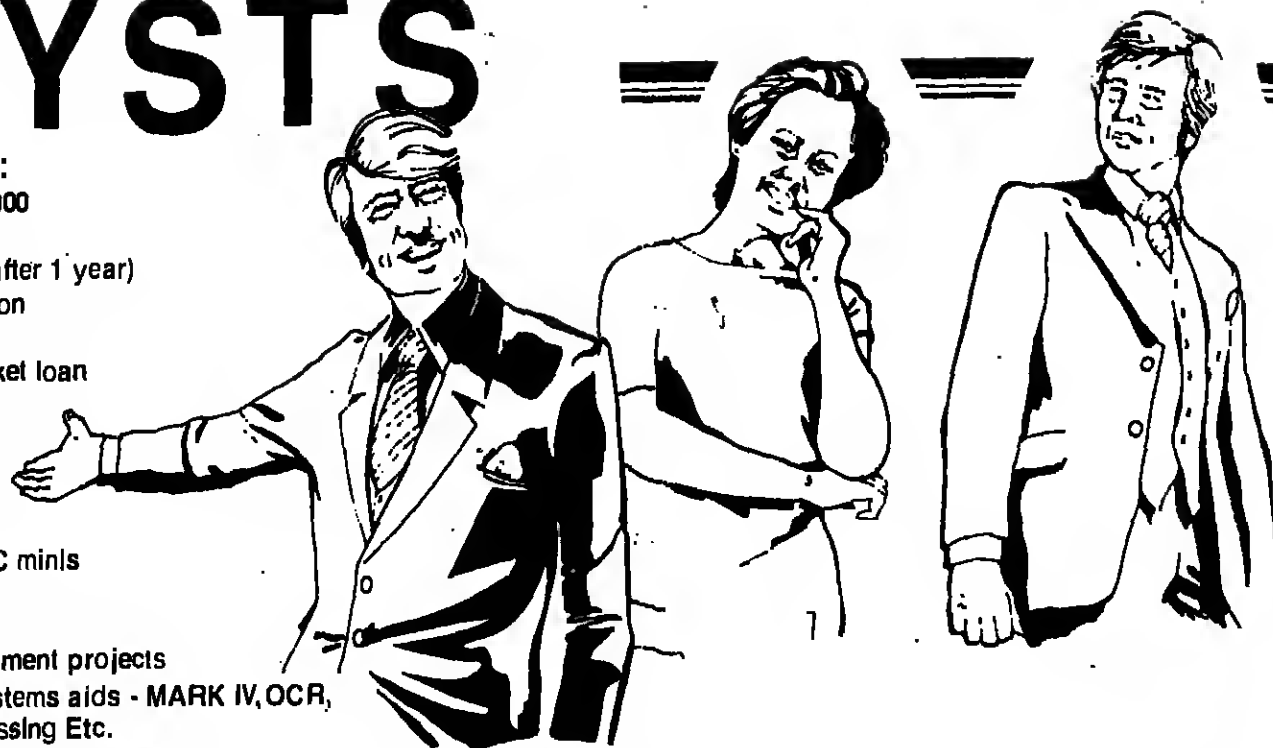
- IBM mainframe and DEC minis
- T.P.
- Database/STAIRS/APL
- Interesting new development projects
- Full use of available systems aids - MARK IV, OCR, Microfiche, Word Processing Etc.
- Comprehensive staff training program.

Which means - an opportunity to join a first rate d.p. team who support a highly successful financial organisation which is part of a major group. The company has one of the lowest d.p. staff turnovers in the country and this has been achieved through a combination of an excellent working environment and job satisfaction. The latter is gained through working on new developments combining the facility of distributed processing based on DEC PDP 11 equipment and the power of the IBM 3031. The installation is constantly reviewing software and hardware facilities to ensure that the most efficient use is made of available technology.

Please telephone (24 hour answer service) or write to apply Quote Ref: CW115-H

**CAPP**  
ASSOCIATES  
01-686 9693

Computer and Professional Personnel Consultants  
**LONDON and MANCHESTER**  
AMP House, Dingwall Road, CROYDON CR9 2AU



Candidates for these posts should have some solid systems experience, gained in a commercial or financial environment, and the ability to communicate with the users and to understand their needs. Work will be in project teams of Analysts and Programmers so a good programming appreciation would be valuable. Analysis will either be part of a team run by a Senior Analyst or Project Leader or be controlling small developments themselves. Career development is encouraged so there are excellent promotion possibilities.

The posts will be based in Croydon. For further details please telephone Capp Associates.

## SNR. FORTRAN PROGRAMMER

FOR COMMERCIAL APPLICATIONS

WEST LONDON

Wimpey Group Services Ltd., located in Hammersmith, has an opportunity for an experienced FORTRAN PROGRAMMER to work on new commercial systems development. The Computer Centre is based on dual 19045 mainframes, and a distributed processing network of some 40 minis and 200 terminals. The successful candidate will work on the Data General minis under RDCS (Rev 6) and a new control program, and wish to progress into detailed design and specification work.

An excellent salary will be offered plus benefits expected from a large company including flexitime, subsidised canteen, discount card, sports facilities, etc.

TELEPHONE: 01-839 6087  
David Ward

BARSON, TAYLOR & WARD  
Computer Personnel Consultants  
107 Jermyn Street, London SW1

TAYLOR & WARD

## Computer Technician

Up to £5,087 per annum

The successful applicant will be involved in the operation and programming work associated with the progressive transfer of applications from a mainframe to a mini computer.

Applicants should preferably have a minimum of one year's computer experience. The appointee will work in a small team having responsibility for the running of the Council's computer installation based on two CMC Reality Royale Minis.

Salary within Grade AP4 (£4,644-£5,087 p.a.) (National Salary Review awaited). Generous relocation package/temporary housing in an appropriate case. Closing date - 24th March, 1980, quoting Post Number 435.

Convening will disqualify. Application form and job description from the Personnel Office, Borough Secretary's Department, Civic Offices, Riverside, Stafford ST16 3AD. Tel: Stafford 3181, Ext. 346.

STAFFORD BOROUGH COUNCIL

## Join the modern bureau scene...

...with a well established, really successful, and rapidly expanding computing services company which is part of a £300 million group. We now have a vacancy for a

## Systems Programmer (DOS/VS, POWER/VS)

Highly competitive salary plus usual big-company benefits. Applicants should have at least two years' experience in systems programming, preferably with BAL, CICS, DLI, VM.

GMS offer exceptionally good opportunities for career development in an expanding environment which includes VS1, VSBC, VTAM, RJE, 3031, 8100, and a long-term migration to MVS.

Applications to John Lawson, GMS Computing Limited, Smithfield House, Sheffield S1 2BU. Tel: (0742) 730191.

**GMS**  
A member of the John & Phil Brown Group

# DAI

UP TO £16,000 - GERMANY  
UP TO £11,000 - U.K.

Digital Applications International is an established systems house with a reputation for excellence in the application of mini and micro computers to real time processes.

We are working on - plant process control and monitoring for applications in North Sea oil and chemical/petro-chemical industries - laboratory automation - mechanical handling - medical systems - management information systems.

With DAI you will widen your experience working on computer hardware from

DEC - Honeywell - Ferranti - Data General - Siemens - Motorola - Intel - Philips - AEG - Foxboro

We keep a PDP 11 in-house for software development and word processing.

We have offices in London, Manchester and Frankfurt.

If you are a computer professional with an engineering or scientific background, this is an

opportunity to join an expanding group which provides challenge, recognition and real opportunity for personal development.

We are recruiting at all levels from senior programmer to project leader for work in the UK and abroad.

The salaries, dependent upon seniority and experience, are only part of the total package. There are perks like profit sharing, relocation expenses, etc. and a company PPP medical cover. There is a company car scheme for the more senior positions.

If you are one of the professionals who please reply to any of our offices, by post or telephone for an application form.

Barbara Daniel, DAI Limited, Alpha House, 24 Warwick Street, London W1R 6RB. Tel: 01-734 5488

Patricia Hewitt, DAI Limited, Alpha House, 24 Warwick Street, London W1R 6RB. Tel: 01-734 5488

Ray Stedman, DAI Limited, 8078 New Avenue, N. Frimley, West Germany. Tel: 051 22 4444

# OVERSEAS VIA I.A.

who have a large number of challenging and very rewarding positions on offer today

## PROGRAMMERS/ANALYSTS

capable of working from existing functional specifications, a global system design and database information; this with a minimum of supervision. The project is Statistical, on IBM 370/138 hardware running under OS/VS1 in PL/I. Jackson programming techniques are to be used and processing of tables will follow a standard table system. A thorough knowledge of COBOL would be as acceptable as that of PL/I for these particular positions.

Location: The Netherlands.

## DATABASE CONSULTANT

to investigate a database structure and reporting system in an IBM 370/158 and 168 environment. A first-class knowledge of IMS Database batch processing for report listing and on-line processing for enquiry handling must be held.

Location: The Netherlands.

## PROGRAMMERS

with a good knowledge of MARK IV are required to work on both stock control and accounting systems. Hardware used here is IBM 370/138.

Location: The Netherlands.

## 3790 PROGRAMMERS

to continue development of a distributed processing system and thus good previous experience of 3790 communications processing and macro assembler is essential.

Location: The Netherlands.

## IBM PROGRAMMER/ANALYSTS

to continue development of commercial systems for a multi-national distributed processing group. Familiarity with structured programming techniques and knowledge of IBM 370/138 hardware running under DO/VS, POWER/GRASP, in a COBOL environment will be looked for, together with a minimum of two years experience. An upgrading to IBM 4300 Series is already in progress.

Location: The Netherlands.

## RPG II PROGRAMMER

to support general commercial systems running on IBM System 34 hardware. These include order processing and financial systems and, although not mandatory, some knowledge of COBOL could well be advantageous. Again, good previous experience will be looking for.

Location: The Netherlands.

## TECHNICAL AUTHORS (HARDWARE)

are required for a number of clients to write handbooks on digital equipment and telecommunications subjects.

An ability to write clear, concise English will be looked for.

All the above opportunities carry really first-class remuneration - together with generous concessions already negotiated with the Dutch taxation authorities - plus four weeks paid holiday per annum, paid national holidays and certified sick time, as well as a holiday bonus and the full support of the administrative staff based in our Dutch offices.

## SO PLEASE WRITE OR TELEPHONE NOW:

Ann Arlidge, Marketing and Recruitment Director, Industrial Artists (Hitchin) Limited, 21 Bancroft, Hitchin, Herts SG5 1JW. Tel: (0462) 62741/2/3 (Day) or (0462) 700701 (Eve/Weekends)

I.A. is a registered Employment Business licensed by D.O.E.

**JBA**

## Operating Systems Specialist

Munich

£30,000 - £33,000

A German specialist systems consultancy comprising a small team of computer technologists require a consultant who has a deep understanding of Mainframe operating systems.

Of particular interest will be experience in the multi-tasking, remote multi-access software handling areas of an operating system, also dual processor software interfacing, etc. Opportunity to acquire a very high standard of living and a remarkable career at the centre of advanced system design work.

Contact: Andy Wright or Mike Creamer

## SNA Software

Holland/Germany

from c. £18,000

Experience gained of working on modifying and implementing several elements of an SNA network, at Systems Programmer level, is very much in demand in various parts of Europe. Typically, a big user will be starting development of a SNA system based on an IBM 4300 under DOS/VS - the problems that this type of development have are often extremely complex and challenging, but very often the expertise is simply not there to cope. If you feel you can contribute in this area, and are considering spending some time on the Continent (1-3 years), call to discuss the possibilities.

Contact: Andy Wright

## Micro-Systems Designers

Germany

£16,000+

A German based consultancy is recruiting a team of designers to work on a variety of projects for leading companies in that country. They are not necessarily seeking individuals with extensive experience, 2 or 3 years is considered adequate.

The work will involve Intel 8080 or Texas Instrument components and a background acquired in software or electronic design aspects is acceptable providing a proven creative approach to work is a dominating feature.

Contact: Mike Creamer

## Sizing and Performance Consultant

London

negotiable to £11,000

Our client is a major computer manufacturer, whose much-publicised success in the market place is creating a further demand for quality J.P. professionals. In particular they are looking for a Consultant to have specific responsibility for the sizing and performance aspects of mainframe proposals and implementation.

Candidates should have a thorough knowledge of the interaction of software, hardware and software systems. Any experience of system timing, configuration exercises, or evaluating manufacturers hardware and systems proposals would also be relevant. Candidates must have the ability to present and justify their technical solutions.

Contact: Bernard Klerman

## Assistant Software Manager

Hertfordshire

up to £10,000

A well-known, multi-product manufacturing organisation require a senior person in one of their divisions to assume responsibility for all software used or connected with their products.

The work will be highly administrative, dealing with tenders, maintenance and modifications, proposals, standards, and attending committees and working parties. Applicants must have sound technical software background, preferably electronics based, and the ability to manage and control the activities of others.

Contact: Mike Creamer

## Customer Engineers

London, Home Counties & Europe

£6,000 - £12,000

We have a number of clients, both computer manufacturers and services organisations, who wish to recruit Customer Engineers. The main requirement is for two years experience servicing minicomputers, peripherals and terminals. A formal qualification is preferred but not essential. Two vacancies exist for Engineering Managers and one for a Junior Technician. For further information

Contact: Jim Baker

## Software Designers - Micros

London Based

£6,000 - £9,500

Opportunities exist for real-time programmers to join a small team of software specialists working on the development of communications systems. There are vacancies at several levels but all applicants should ideally have some background in the design and programming of technical applications on mini or micro based systems. Graduates with limited experience will be considered for junior positions.

This is a real opportunity to work in a friendly and professional environment on new technology projects.

Contact: Margaret Stevens

## Sales Support

(Mini Systems)

neg. to £8,000 + car

A real chance to join an organisation which has grown in influence and whose achievements reflect the acceptance of its products in expanding multinational markets.

If your present responsibility is to develop and implement mini-based commercial business systems and you feel that the next challenge is a move into sales support then our client, a mini-computer manufacturer is able to offer opportunities in this area.

Analysts and Programmers with sound BASIC experience, will be considered for business support positions. A background experience of commercial applications will be an essential ingredient.

Contact: Margaret Stevens

**JAMES BAKER ASSOCIATES,**  
International Personnel Consultants,  
82 Savile Row, London W1.  
Tel: 01-438 9311.

01-438 9311







## If you're on form... ...fill in this one.

If you're performing really well in your present job, you'll be keeping your eyes open for something better.  
But being a top performer, you've got better things to do with your time than pore over pages of job ads and make dozens of phone calls.  
So to save time, and to get yourself lined up for some of the best jobs going, just fill in our application form.  
We'll then get back to you fast with details of jobs that are exactly right for you.

**Personal** Please write in ballpoint, using block capitals.  
Surname \_\_\_\_\_ Forenames \_\_\_\_\_ Mr/Ms  
Address \_\_\_\_\_

Tel. Home \_\_\_\_\_ Office (discretion will be used) \_\_\_\_\_  
Age \_\_\_\_\_ Nationality \_\_\_\_\_ Car? \_\_\_\_\_  
Are you prepared to relocate in UK? ☐ Abroad? ☐ (tick box)

**Experience** Place no. of years in box, e.g. IBM 360/370 ☐ 4

### Machines:

Please specify model.

IBM 360/370 ☐

IBM others (specify) ☐

ICL 1900/2900 ☐

ICL others (specify) ☐

Honeywell ☐

Univac ☐

Burroughs ☐

PDP ☐

Other mainframes ☐

Other mini-computers (specify) ☐

Languages

Cobol ☐

Plan ☐

Assembler ☐

PL/I ☐

Fortran ☐

Filelab ☐

RPG/1 ☐

Auto/easy/user code ☐

Others (specify) ☐

Operating Systems

DOS ☐

OS ☐

George (specify) ☐

CICS/HASP/GRASP ☐

DBOMP/MT/IMS ☐

CMS ☐

Others (specify) ☐

Others (specify) ☐

Others (specify) ☐

Others (specify) ☐

Others (specify) ☐

Others (specify) ☐

Others (specify) ☐

Others (specify) ☐

Others (specify) ☐

Others (specify) ☐

Others (specify) ☐

Others (specify) ☐

Others (specify) ☐

Others (specify) ☐

Others (specify) ☐

Others (specify) ☐

Others (specify) ☐

Others (specify) ☐

Others (specify) ☐

Others (specify) ☐

Others (specify) ☐

Others (specify) ☐

Others (specify) ☐

Others (specify) ☐

Others (specify) ☐

### Position Sought

Please state briefly the type of appointment you are seeking.

Contract? ☐ Permanent? ☐ Either? ☐ (tick box)

Minimum salary £ \_\_\_\_\_ Notice required/Date available \_\_\_\_\_

Signed \_\_\_\_\_ Date \_\_\_\_\_

Cut out the whole advertisement and post to the address below.

**Knight**

Knight Computer Services Ltd.

100, Broad Street, London W1P 3JL

**01-491 4706**

## SYSTEMS ENGINEERS

West Surrey  
c.£6,500 (Under Review)

Our client has grown steadily and must continue to expand to encompass new technology and the world-wide demand for their expertise.

As an independent Systems Company they provide multi-disciplinary teams giving comprehensive service in civil and military operational research, system design and implementation, end project management. Projects span the civil and defence fields at home and abroad, and their highly qualified staff provide imaginative and practical solutions to a wide range of problems.

Engineers are required for system and sub-system design, assessment of performance, definition of interfaces and system interrogation. Experience in one or more of the following would be particularly relevant:

Digital Systems Engineering, Software Definition, Navigation or Weapon Aiming, Electronic Displays, Systems Analysis and Modelling, Avionic Integration, Reliability and Maintainability, Ground Support Equipment.

Benefits include a generous discount towards BUPA, Company Pension Scheme and Lunchtime Vouchers.

Ref. No. 38/11/80

The Central London Headquarters of a well-established international software house network are inviting applications for the following posts to fulfil their planned growth requirements.

## ANALYST PROGRAMMER

to £8,500 p.a.

Applicants should have at least four years' experience in data processing as well as a sound commercial knowledge of mini-computers.

## PROGRAMMERS

to £7,000 p.a.

At least two years' experience is required for these vacancies — preferably on mini-computers. A knowledge of BASIC is desirable although not essential.

The above positions are permanent and offer extremely good long-term career prospects within this fast-moving and progressive company.

The working environment is friendly, and as well as the above salaries there are excellent fringe benefits.

Interviews will be held in London throughout March and offers will be made to successful candidates within one week of interview.

Ref. No. 3A/11/80

## HAVEN INFORMATIX LIMITED

Recruitment Consultants

24 Crays Inn Road, London WC1X 8HR Telephone 01-831 6055 Telex 299639 HAVEN

### RATNERS (JEWELLERS) LIMITED

require

## PROGRAMMER/ANALYST

London, E01 c. £8,000

Ratners (Jewellers) Ltd. seek a computer programmer.

Suitable candidates for this position will have two or three years' programming experience, preferably covering business accounting and stock control. The person appointed will work on the development of the stock control system as his initial project in Farringdon Road, E.C.1, and later as management trainee.

The appointment carries a salary of approximately £8,000 per annum with 3 weeks' annual holiday (rising to 4 weeks after 3 years' service). The company operates a non-contributory pension scheme.

Applications, giving full personal and career particulars, should be sent in writing, quoting reference R231-W to:

Dr Geoffrey M. Scott  
BOY HOWARTH LIMITED  
Management Consultants  
54 Baker Street  
London W1M 1DJ

### The College is installing a new ICL 2904 computer for educational purposes. The installation will be based at Bradford College but will service the needs of the Bradford Metropolitan District Colleges.

## PROGRAMMER

Applications are invited from experienced computer systems and applications programming.

Candidates will preferably have a knowledge of COBOL, Fortran, Algol, and Pascal.

The salary for this post will be in accordance with the Conditions of Service, Grade A4.

Applications, giving full personal and career particulars, should be sent in writing, quoting reference R231-W to:

Dr Geoffrey M. Scott  
BOY HOWARTH LIMITED  
Management Consultants  
54 Baker Street  
London W1M 1DJ

## MYRIAD

## BECOME A SOFTWARE DEVELOPMENT MANAGER

£ NEGOTIABLE + CAR

This position presents an outstanding opportunity for either a Departmental Programming Manager with a technical background or a person experienced in Systems Programming, to take responsibility for an expanding Software Development Team.

Joining a specialist group, the Software Development Manager will lead small teams developing a range of software products on IBM 370 and 4331 equipment.

This position offers an ideal opportunity for a SENIOR SYSTEMS PROGRAMMER who is seeking a positive career advancement into management whilst retaining a full technical involvement.

### THAMES VALLEY

Liaising closely with technical support and marketing personnel to interpret and define future requirements, the successful candidate will contribute to the design of products in addition to identifying improvement potential in existing systems.

Candidates for this challenging role will have a strong IBM ASSEMBLER background, preferably gained at a DOS/VS installation, and possess the personality to motivate and control a fast growing staff of technicians.

To cope with the ever-increasing demand for its products and to maintain its leading position in the software field, the Company has ambitious expansion plans, thus presenting the person appointed with considerable scope for career progression. A good starting salary is further enhanced by a company car and first-class conditions of employment, including generous relocation expenses where appropriate.

REF S1/1303

### MYRIAD APPOINTMENTS LIMITED

30 Fleet Street London EC4Y 1AA Telephone 01-353 0981 24 hours

## If you are going to be big in computers, you have to work with the best, on the best — at ARAMCO.

ARAMCO, the Arabian American Oil Company, is the number one developer of energy reserves in Saudi Arabia.

Its computer controlled oil operations are the largest in the world, using the very latest technology.

They include oil and gas dispatching — message switching — rigidity metering — plant process control — mechanical warehouse control — oil production automation and energy management (SCADA).

If you are a process computer professional with a BSc or equivalent in Engineering, computer science or related scientific field, this is the once in a lifetime offer ARAMCO is making.

### Process Computer Specialists

— Hardware Engineers

— Software Engineers

— Systems Engineers

— £11,000 - £17,400 after tax.

The salaries, depending upon seniority and experience, are only part of the story. ARAMCO offers some of the finest working and living conditions in the Middle East, including recreational facilities such as football, tennis, swimming, golf, squash, English cinema and TV.

There is real opportunity for personal capital buildup. Yet we suspect the biggest attraction is the rapid experience you will gain, working with the very latest computer hardware.

You will be working alongside the world's top specialists and managers in an environment where multi-million dollar decisions are taken faster.

ARAMCO is the place for the self-starter who enjoys a challenge and recognition.

You are one of the ambitious professionals we seek, already you will have worked out how much more this 'state of art' experience can add to your salary potential when you return home.

Appointments are on a single-status, renewable annual contract, with regular paid UK leave. Candidates must be physically fit and hold a current UK driving licence. For further details and an application form please telephone 01-629 2357 or 2358 (quoting reference 6493) or

write to: The Operator for Telephone 2422, or write with full c.v. to: Astral Recruitment Associates, Astral House, 17/19 Maddox Street, London W1R 1EY.

The latest computer technology is right here

Astral Recruitment Associates  
Search, Selection, Recruitment Advertising

### UNIVERSITY OF READING LECTURESHIP IN COMPUTER SCIENCE AND MICROPROCESSOR APPLICATIONS RESEARCH ASSISTANT POST IN MICROPROCESSOR APPLICATIONS

Applications are invited from candidates with an interest in both hardware and software for two posts.

(1) Lecturer in Computer Science and Microprocessor Applications. This post is shared between the Microprocessor Education and Support Unit (established within the Computer Centre) to support applications of microprocessors throughout the University and the Department of Computer Science (which itself is expanding its interest in digital electronics). Further particular may be obtained from the Registrar (Room 214, Whiteknights House), The University, Whiteknights, Reading RG6 2AH, by whom applications (two copies and including the names of two referees) should be received not later than 8th April, 1980.

(2) Research Assistant in Microprocessor Applications. This post is solely within the Microprocessor Education and Support Unit and the successful candidate will be expected to implement software systems and develop testcases and communications equipment. Salary will be at an appropriate point in the Research and Allied Grades. Applications (two copies, including the names of two referees and quoting reference R231-W) should be sent to the Assistant Registrar (Personnel), Whiteknights House, University of Reading, Whiteknights, Reading RG6 2AH and should reach him not later than 8th April, 1980. (11)

Apply to confidence to Terry Harvey by sending personal and career details, or contact him for an application form, evenings 6p. Missenden (02406) 4705 or daytime as below.

Apply to confidence to Terry Harvey by sending personal and career details, or contact him for an application form, evenings 6p. Missenden (02406) 4705 or daytime as below.

Apply to confidence to Terry Harvey by sending personal and career details, or contact him for an application form, evenings 6p. Missenden (02406) 4705 or daytime as below.

Apply to confidence to Terry Harvey by sending personal and career details, or contact him for an application form, evenings 6p. Missenden (02406) 4705 or daytime as below.

Apply to confidence to Terry Harvey by sending personal and career details, or contact him for an application form, evenings 6p. Missenden (02406) 4705 or daytime as below.

Apply to confidence to Terry Harvey by sending personal and career details, or contact him for an application form, evenings 6p. Missenden (02406) 4705 or daytime as below.

Apply to confidence to Terry Harvey by sending personal and career details, or contact him for an application form, evenings 6p. Missenden (02406) 4705 or daytime as below.

Apply to confidence to Terry Harvey by sending personal and career details, or contact him for an application form, evenings 6p. Missenden (02406) 4705 or daytime as below.

Apply to confidence to Terry Harvey by sending personal and career details, or contact him for an application form, evenings 6p. Missenden (02406) 4705 or daytime as below.

Apply to confidence to Terry Harvey by sending personal and career details, or contact him for an application form, evenings 6p. Missenden (02406) 4705 or daytime as below.

Apply to confidence to Terry Harvey by sending personal and career details, or contact him for an application form, evenings 6p. Missenden (02406) 4705 or daytime as below.

Apply to confidence to Terry Harvey by sending personal and career details, or contact him for an application form, evenings 6p. Missenden (02406) 4705 or daytime as below.

Apply to confidence to Terry Harvey by sending personal and career details, or contact him for an application form, evenings 6p. Missenden (02406) 4705 or daytime as below.

Apply to confidence to Terry Harvey by sending personal and career details, or contact him for an application form, evenings 6p. Missenden (02406) 4705 or daytime as below.

Apply to confidence to Terry Harvey by sending personal and career details, or contact him for an application form, evenings 6p. Missenden (02406) 4705 or daytime as below.

Apply to confidence to Terry Harvey by sending personal and career details, or contact him for an application form, evenings 6p. Missenden (02406) 4705 or daytime as below.

Apply to confidence to Terry Harvey by sending personal and career details, or contact him for an application form, evenings 6p. Missenden (02406) 4705 or daytime as below.

## Sales Executives

Thames Valley — London — N. Home Counties

Realistic Quota Earnings £15K to £17K + car

Several clients require Sales Executives for products or services. The range covers: mini-computer and terminal systems, word processors, technical programming services in real-time, process control, compilers etc. and telex compatible communications devices.

## Software Manager

Berks. £10,000 + car

A small company (c.£4m turnover) specialising in micro based products in the leisure and medical markets. The company requires strong software expertise gained in a mini or micro development environment.

## Assistant Software Manager

Herts. c.£10,000

An ideal opportunity for an experienced software development person to obtain a management position. The ideal person will have a good degree and several years programming experience, some of which will have been gained on a real-time project. Responsibilities include: man-management of an existing team, specifications, budgeting, standards and maintaining a state-of-the-art awareness.

## Computer Services Manager

Beds. £9,000 +

Our client requires an experienced software specialist who has the rare combination of administrative ability and technical competence. The person appointed will set up procedures for the verification and maintenance of a mini-computer operating system. The work will involve liaison with U.S. and U.K. development teams in providing a smooth running development service.

Apply to confidence to Terry Harvey by sending personal and career details, or contact him for an application form, evenings 6p. Missenden (02406) 4705 or daytime as below.

Apply to confidence to Terry Harvey by sending personal and career details, or contact him for an application form, evenings 6p. Missenden (02406) 4705 or daytime as below.

Apply to confidence to Terry Harvey by sending personal and career details, or contact him for an application form, evenings 6p. Missenden (02406) 4705 or daytime as below.

Apply to confidence to Terry Harvey by sending personal and career details, or contact him for an application form, evenings 6p. Missenden (02406) 4705 or daytime as below.

Apply to confidence to Terry Harvey by sending personal and career details, or contact him for an application form, evenings 6p. Missenden (02406) 4705 or daytime as below.

**Harvey Recruitment**

Executive and Consulting Personnel Consultants

500 Chesham House, 150 Regent Street

London W1R 6PA Tel: 01-734 5351



M.I.B.F., one of the largest distributors for data recording products in the U.K. and also specialists in supplying advanced peripherals and consumables to Britain's computer industry, have the following vacancies:

### SALESMAN—PERIPHERALS

To be based in Southern England and responsible for selling M.I.B.F. peripherals (printers, disks, VDUs) to end-users and OEMs in South-East England.

The person we are looking for will already have successful sales experience in the computer business and will have sufficient technical understanding to become aware of interface problems and solutions.

This is a recently formed division of the Company with more need for a flexible, 'savvy' salesman, self-motivated and able to meet targets without supervision.

Target earnings: £12,000-£15,000.

A company car is provided.

### SALES ENGINEER

To be based at our offices in Hertfordshire, responsible to the Peripherals Division Manager, this position involves providing pre-sales support for our Peripherals Division involving:

- demonstrations
- interface preparation
- technical projects
- some selling on commission (if suitable candidate)

The ideal candidate will need to be flexible and prepared for reasonable travel in the UK as required. He/she will have an understanding of minicomputers at good practical level, a good 'sales' personality together with some commercial experience either in field engineering or sales support. The position could suit a graduate with 1-2 years' experience.

Salary — £8,000 p.a., and possibly some commission. A company car is provided.

For further information, please contact:



M.I.B.F.  
Peripherals  
Division

Peter Hall  
M.I.B.F.  
Barclays Bank Chambers  
Pegg Lane  
Kirkgate  
Tadcaster, North Yorkshire  
Telephone: (0837) 832868

SUPPLIERS TO BRITAIN'S COMPUTER INDUSTRY

(119)

## BECKMAN® DATA PROCESSING MANAGER

Beckman is an international manufacturer of high technology medical and scientific instrumentation. Continued expansion of our European manufacturing operations has created an opportunity for a Data Processing Manager at our Administration Centre.

Reporting to the Financial Controller you will have total responsibility for all future D.P. development which includes implementation of on-line systems, utilizing Hewlett-Packard 3000 equipment.

You should have at least five years experience in a manufacturing environment backed by a sound knowledge of Bill of Material, Inventory Control, and Material Requirement Planning, involving COBOL and Database systems.

As close co-operation with our Data Processing Department in California will be required, you probably will have the opportunity of spending three months in the United States shortly after appointment.

Salary will not be a barrier to the successful man or woman and other important benefits include a free pension scheme, 22 days holiday and a first class television package.

Please telephone 01524 771234 (overseeing the charges) or write with CV to:

Elizabeth Peon  
Personnel Officer  
Beckman RUC Limited  
Eastfield Industrial Estate  
Glasgow  
File, KY7 4NG

**BECKMAN®**  
A way of life in the Laboratory

108

### CLASSIFIED COPY

All classified copy should reach our office no later than 3.30 p.m. on the Monday preceding Thursday a publication. If complete artwork is supplied, 11 a.m. on Tuesday. Ring Roy Kelly for further details on 01-281 8016.

## SOFTWARE ENGINEERS

At GTE ATEA we have a long history of significant contribution to the development of telephony in Europe and are rapidly expanding our commitment to the public and private markets for processor based communications systems.

This expansion creates vacancies in our development teams for managers, supervisors and experienced software engineers, both here in Belgium and on temporary assignment in the U.S.A.

We seek engineers with two to ten years software experience in real-time systems (depending on job function), or equivalent telephony experience with an inclination towards software. Applicants should be educated to degree or HND standard.

Successful candidates may be offered the opportunity to work for about two years in one of the laboratories of our parent company GTE in the United States before joining our permanent staff in Belgium.

Interested persons should apply in writing, with curriculum vitae, to Mr. L. Luyten, GTE ATEA N.V., Industriepark Klein Gent, 2410 Herentals, Belgium who will treat all applications as strictly confidential.

**GTE ATEA**

## City of Aberdeen

CITY CHAMBERLAIN'S DEPARTMENT

### COMPUTER SECTION SOFTWARE DESIGN & ANALYSIS

SALARY SCALE: £5,382-£7,338 per annum  
(Comparability Award is due shortly)

Applications are invited for the above supernumerary post of Analyst/Programmer. The successful applicant will be required to assist the Senior Software Designer in the development and maintenance of installation software, including real-time programs, and should be experienced in PLAN, COBOL, ICL Data Communications Software and George 2+. The duties will also include implementation analysis. The equipment consists of 2 x 2804 Computers (48K and 64K) with one processor used solely for communications.

A five-day week and a pilot scheme of flexible working hours is in operation. Removal expenses, where appropriate, will be payable.

Applications, stating age, educational qualifications and details of relevant experience, should be lodged with the City Chamberlain, Town House, Aberdeen, AB9 1AH, by Friday, March 28, 1980. (117)

### SENIOR OPERATOR

WISHING TO BECOME SHIFT LEADER

SURREY Circa £8,000 p.a. + Paid Overtime

A rapidly expanding international company with a U.K. head office in Surrey is seeking a senior operator working a standard three-shift system.

The present IBM installation is being upgraded later in the year to the IBM 4341 offering increased opportunities.

The successful applicant will have approximately two years' experience on IBM 370, DOS/VS, POWER/VS and is now seeking promotion to shift leader.

Experience of CICS and T.P. would be an advantage as there are existing links with the Southern Ireland operation plus plans for T.P. links with the European operations.

Apart from an attractive working environment and the opportunity to learn new skills, the benefits also include a generous meal, free meals when on night shift, free life assurance, part paid P.P.P. and a sports and social club.

For further details ring  
JIM FOREY, Operations Manager, on  
01-548 7735

(117)

### Computer Programmer Systems Analyst

£6501-£6864 or £5958-£6327 Dorking

For the Headquarters of South Eastern Road Construction Unit, Federated House. To be responsible to Section Engineer (Computers) for providing detailed technical advice on computing and its application to the in-house mini-computer and providing a computing advice service to Sub-Units.

The person appointed will develop and maintain a working knowledge of mini-computer (Mod Comp IV), advise on methods of improving the operating system, job control and programs in current use and should have knowledge of control languages and operating systems preferably in use at SIA and LUCS. Applicants should have a degree in Computer Science, Mathematics or Civil Engineering with several years' computing experience, a working knowledge of FORTRAN and experience of other mini-computers or bureaux.

The appointment will be temporary for a period of approximately 4 years but there may be an opportunity for extended employment.

Application form from County Engineer (please quote Post No. 42), Highways House, 21 Chesham Road, West Ewell, Epsom, Surrey. Tel. 01-294 1788. Closing date: 2 April 1980.



## Midland Recruitment Feature March 20th

For further  
details contact  
**Stan Harris**  
on 021-356 48

# SIGN UP A BIG MONEY CONTRACT AND BE AN OVER-KNIGHT SUCCESS

As Europe's biggest  
We can offer you  
more~just phone....

•Manchester•

061-833 9341 (24 hrs)

•Birmingham•

021-643 8867 (24 hrs)



### Knight Programming Security Deal

1. Absolute confidence guaranteed.
2. Completely informal meetings, where and when you want.
3. Full expenses paid for all meetings.
4. Company accountant for tax, mortgage, insurance and pensions advice.
5. Continuous work for security of employment.
6. Accommodation assistance.

We've produced a guide to contract work just for you, pointing out all the things you have to know. Phone now for a copy of this special problem solving leaflet. All you need to know about going contract the Knight Programming way.

Opportunities are telexed to us every day of the week

PHONE NOW FOR DETAILS

### Analyst Programmers

£270 per week North West

How about spending at least 6 months with a national company, working with a small enthusiastic team, pulling good money and working in very attractive semi-rural surroundings. If you have experience of IBM 370 OS/COBOL/CICS and DLI, you could start now. But you'll have to phone us now. This is one of this week's best.

£270 per week Yorkshire

Come to the countryside for 9 months and earn yourself a packet! Work on financial applications with very important people. If you've experience with ICL 2976 VMEB COBOL and essentially IDMS, you're just the person we can trust. And you can start now, but only if you phone us now.

£270 per week Midlands

If you rate yourself really highly then we have a company who needs you now. If you can be trusted to work on your own initiative then a place for you definitely exists within a small friendly company for at least 6 months. PDP and DIBOL at least 5 years experience and a degree are your passport to working on financial and sales support. Phone us now for details.

£280 per week ICL 2960 VMEB IDMS COBOL. Yorks.

£280 per week IBM CICS DLI COBOL Yorks

£280 per week Scientific Fortran North West

£270 per week PDP11 RSX11M Midlands.

£255 per week HP3000 Image Query North West

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

### Programmers

If we can't find you the best jobs, nobody can.

£270 per week North West

We need someone serious. Is it just a job you're on a small team bubbling with enthusiasm? We're talking about you working for a national company on a 3 month, possibly renewable basis. Strong PL1 and CICS experience is what we're asking for. In return you get the best. Phone us now and find out.

£255 per week North West

Join one of the friendliest crowds you could ever hope to meet. Enjoy your work on general commercial applications and score with the cash too! All we're asking is COBOL, CICS, IBM 370/138 DOS/VS experience. And what are you gaining? A top class position. Phone us and see.

£255 per week North West

Come and put your stamp of authority on a big company's team. If you have experience of HW66 & DMIV and/or IDS/TDS GCOS and COBOL, you're the person who could create quite a destiny here. There's a 6 month contract starting from the end of April on offer and work on general commercial applications. Give us a ring now for this marvellous opportunity.

£255 per week North West

Be someone big in the big City. Take a new project and a large team for at least 6 months and show what you can do. If you have 4 years experience of Design and Project management, plus experience in all aspects of Technical Design, HP3000 and knowledge of structured

£255 per week North West

£255 per week North West

£255 per week North West

£255 per week North West

£255 per week North West

£255 per week North West

£255 per week North West

£255 per week North West

£255 per week North West

£255 per week North West

£255 per week North West

£255 per week North West

£255 per week North West

£255 per week North West

£255 per week North West

£255 per week North West

£255 per week North West

£255 per week North West

£255 per week North West

£255 per week North West

£255 per week North West

£255 per week North West

£255 per week North West

£255 per week North West

£255 per week North West

Come to the City and in the big time to monthly. Join a really big company but work for a really compact team. HW66, GCOS COBOL, plus experience of DM4 and/or IDS/TDS make you the ideal person. You'd be working on a conversion from IBM 370 so you see it's a very special opportunity. Ring now for details. To start by the end of April.

£280 per week PDP11 Basic Midlands

£280 per week IBM CICS COBOL Various

£270 per week Univac Fortran Midlands

£255 per week HW66 IDS TDS Various

£255 per week PDP11 DIBOL North West

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

£255 per week

### Design & Analysis

This week's best paid jobs.

Team Leader £300 per week North West

Come and put your stamp of authority on a big company's team. If you have experience of HW66 & DMIV and/or IDS/TDS GCOS and COBOL, you're the person who could create quite a destiny here. There's a 6 month contract starting from the end of April on offer and work on general commercial applications. Give us a ring now for this marvellous opportunity.

£300 per week North West

Be someone big in the big City. Take a new project and a large team for at least 6 months and show what you can do. If you have 4 years experience of Design and Project management, plus experience in all aspects of Technical Design, HP3000 and knowledge of structured

£300 per week North West

£300 per week North West

£300 per week North West

£300 per week North West

£300 per week North West

£300 per week North West

£300 per week North West

£300 per week North West

£300 per week North West

£300 per week North West

£300 per week North West

£300 per week North West

£300 per week North West

£300 per week North West

£300 per week North West

£300 per week North West

£300 per week North West

£300 per week North West

programming, you could start now. It's responsible work but you will be rewarded well for it.

Systems Designer £280 per week North West

A big international organisation needs you. If you have 4 years technical design experience, can take a project to integrated testing and be involved in stock management and production you're the person we're looking for. Get in at the beginning of something new.

£300 per week Systems Designer IDMS Various

£300 per week Project Leader/Designer North West

£300 per week Project Leader UNIVAC North West

£280 per week Senior Analyst HP3000 Various

£280 per week Systems Analyst Maximim Midlands

£280 per week

£280 per week

£280 per week

£280 per week

£280 per week

£280 per week

£280 per week



**JBA****Sales Executive —  
Peripherals****Leeds Based Earnings c. £13,000 + car**

An internationally known peripheral manufacturer is seeking a Sales Executive to work in the YORKSHIRE area. Applicants should have a professional outlook and have had previous sales experience within the computer industry or have a good systems background coupled with the ability and ambition to sell. Good benefits and excellent incentives.

**Systems Design —  
Database****Coventry****c. £7,500**

A large industrial organisation with many diverse interests is seeking a SYSTEMS/DATABASE DESIGNER to assist in the development of a range of commercial applications using on-line and database technology. Applicants should have a good computing background with at least 2 years in systems together with previous database experience.

**Senior Systems Analysts  
Nottingham****c. £7,300**

One of the major IBM users in the Nottingham area is seeking to appoint SENIOR SYSTEMS PERSONNEL to be involved in analysis and design of commercial systems. Applicants should have a good basic education, some programming background and normally at least 7 years systems analysis and design experience. A period in an IBM mainframe installation would be an advantage.

**Financial Systems  
Specialist****Rural Midlands****Neg. to £8,000**

A multi-national engineering company requires a specialist with the ability to identify and develop software for the analysis of corporate financial data. Applicants should have good computing experience with a bias toward financial matters and their related analytical techniques. A knowledge of APL would be advantageous but training will be provided where necessary. Really interesting systems work combined with the opportunity to learn and use an interactive computer language.

**PDP-11 BASIC +****West Midlands****£5,500 - £7,500**

A retail organisation, which is well-known in the high street, is seeking a number of PROGRAMMERS with varying lengths of experience to assist in the development and implementation of a range of new commercial systems. Applicants should have a minimum of 1 years programming experience on a PDP-11/RSTS system using BASIC+. Good benefits combined with the opportunity for personal development within this well-known organisation.

**Systems Programmer  
Rugby****up to £7,000**

A medium size engineering company has a vacancy for a TECHNICAL SUPPORT PROGRAMMER to join a small team responsible for systems software, and to assist in applications programming. Applicants should have a good education with a minimum of 2 years IBM DOS/VS programming experience together with the ambition and ability to work with systems software. An ideal opportunity to develop a career in system software.

To apply for the above positions or for further information please contact: Bev Stevens.

James Baker Associates, International Personnel Consultants, 32 Savile Row, London W1. Tel: 01-439 9311 or 0454-861813 Evenings or Weekends.

Searle Manufacturing  
Company Limited

have a vacancy for a

**SENIOR  
SYSTEMS ANALYST**

We have recently installed an IBM System 34 utilising the MAPICS software and we require a Senior Systems Analyst to establish the design, development and implementation of an integrated MRP system.

Applicants should have had at least three years' experience at MRP systems, with a good working knowledge of company systems and procedures within a manufacturing organisation.

The salary is negotiable commensurate with qualifications and experience. There are generous relocation allowances, where appropriate. A car leasing scheme is also available.

Please write, giving details of previous experience, qualifications and present salary level, to:

The Personnel Department

**searle**

MANUFACTURING COMPANY LIMITED  
Newgate Lane, Fareham, PO14 1AR  
Tel. Fareham 236181

**ANALYST/PROG.** Surrey  
2 yrs. COBOL programming and 1 yr. analysis required, with good knowledge of IBM.

**TO £10.5K SYSTEMS ANALYST** Hampshire  
Experience of insurance or financial application and at least 5 yrs. in systems programming and min. computer experience preferable.

**ENEG. PROGRAMMER** Kent  
Insurance company require a COBOL programmer with about 2 yrs. experience using IBM hardware.

Many more unadvertised positions

168 FINCHLEY ROAD, LONDON NW3  
Telephone: 01-794 0202

**COMPUTECH 01-794 0202**

**MYRIAD****SYSTEMS  
PROGRAMMERS****MOVE INTO ON-LINE SYSTEMS****NORTH OF LONDON****c. £9000**

Due to the expanding use of on-line systems within the organisation, a senior vacancy has arisen in our On-Line Systems Support team. The position is ideally suited to an existing IBM Systems Programmer who has a keen interest in advancing into the on-line systems area.

He/she will be required to function in both an on-line systems programming role and user support to the many Data Processing departments of our associated companies, using our in-house computer services based on IBM 370 machines running under OS/MVS.

The successful applicant will have had at least 2 years' experience of OS Systems Programming and will be able to communicate effectively with both senior systems personnel and user management.

This stimulating and technically challenging career opportunity is supported by the security of large company advantages and a generous relocation scheme where appropriate.

N1/1303

MYRIAD APPOINTMENTS LIMITED  
30 Fleet St. London EC4Y 1AA Tel: 01-353 0981 24 hrs

**RPG-II PROGRAMMERS****SALARY £6,000-£7,500**

Required to join a small friendly team working on a number of inter-active systems.

Prospects are excellent with training provided to movement to the post of Analyst within 12 months.

Applicants must have at least two years' experience. Please send c.v. to:

General Manager  
MORPHEUS DATA PROCESSING LTD.  
Refuge House, Riverfront, Enfield  
Or Telephone: 01-383 6742

Come work in the

**U.S.A.**

OFFICES: New Jersey, New York, California, Colorado, Connecticut, Illinois, Indiana, Massachusetts.

**Programmers/  
Programmer  
Analysts****\$18-28K**

With 2+ years experience in any of the following:

**IBM**  
360/370 OS/DOS/COBOL/BAL  
PL-1/IMS/CICS/DL-1

**Mini/Micro**

Systems or Application Programmers. 2 years minimum experience with any Assembler and/or machine language. Communications and/or tele-processing experience a plus.

We offer challenging assignments in various U.S. locations.

Phone: Marlen Lipton,

Merch 17-25 (10am-6pm)

**01-722 7711**

(reverse charges accepted)

**AGS**

Complete the coupon and return to Effectia Gravis, National House, 66 Wardour Street, London, W1V 3HP, for your next PERMANENT or CONTRACT job.

(BLOCK CAPITALS PLEASE)

Name (in full)

Address (Permanent)

Telephone, Home

Office

Type of Transport

Date of Birth

Current Position (Contract/Permanent) delete

Salary/Rate

Position Required (Contract/Permanent) delete

Salary/Rate

Notice Required / Date Available (delete)

Areas Preferred: First Choice

Second Choice

Experience to date: (Last Position First)

Company Name From To

and Location Mth/Year Mth/Year Duties and experience

Date

Signature

Reg No

DATE

CW13 3-81

# Contractors £250-£350 eMS have over £1¼ million immediately available with new contracts We need 60 people now!

Phone today urgently — 0782-623665 (Contracts Division)

**London & Southern —  
Urgent**

IBM, Honeywell Analysts — West Country  
PDP-11 Assembler Data Comm — London  
Analysts & Progs. IBM PL/1-IMS — Kent  
IBM Cobol Programmers. IMS.

PDP-11 Basic. Numerous London & H. Counties.

Honeywell L66 Cobol Progs. — West Country  
Counties

IBM-IMS, PL/1 — London & Home Counties

IBM-370 & Database — Middx.  
Many more advised weekly

Phone today and let us know when you're next available anyway.

**Midlands - Urgent**

Burroughs Cobol Prog DMS 2

Honeywell 6000 Series, IDS11 Prog. Cobol.

Mini-Message Switching — Notts

Honeywell-Genesis — Midlands

IBM Cobol/Fortran - CICS Progs. DEC — Various sites - Midlands

ICL New Range - Engineers & Progs. — Steffs

IBM PL/1 Analysts & Progs — Staffs/Darby.

Many extra each week.

Phone today and let us know when you're next available anyway.

**Northern - Urgent**

Analysts - Various clients — Liverpool  
Progs. - Cobol, PL/1 DOS — Liverpool

Systems Designers - CICS DOS — Manchester

IBM Cobol, CICS Progs. — Manchester  
IBM - Fortran Progs — Manchester

IBM - Cobol/Fortran Team Leaders — Manchester

IBM Analysts - IMS — Yorks  
ICL Analysts & Progs — Numerous Northern

All Urgent — Phone today

**eMS Consultants Ltd.**  
61/63 Lower Street  
Newcastle-under-Lyme  
Staffs ST5 2HS  
Phone: 0782-623665 (10 lines)



# Are you just hoping for a good year? ...or are you going to make sure...

... No longer restricted by large company policy or bureaucratic "red tape" you could really influence the company's policy and secure a real promotional opportunity with our Client, a privately owned British Company, engaged in supplying a diversified range of office products including printing, text editing, word processing and small computer based business systems. The company occupies an enviable position in the North of England with a client base of c 20,000 and a turnover in excess of £2.5 million.

A new era of growth dawns where they have taken a distributorship for equipment produced by a leading computer manufacturer.

## Sales Executives Lancashire

Management opportunity can be realised by you, if you are able to demonstrate a successful record of selling small computer systems, coupled with a true desire to make a contribution to an expanding company.

You must be able to demonstrate the capability to sell new named business and in addition possess the ability to convert a considerable number of qualified leads.

In return you will be given a substantial income package, a company car and realistic and achievable sales quotas. If the opportunity of working for a young, professional management team, whose organisational structure can offer real career progression - appeals to you, then contact, GATHY TRACEY ON 021-236 3781.



London 01-935 0671 3 Mendenhall Place, Wigmore Street, London W1M 5LB  
Birmingham 021-236 3781 35-37 Great Charles Street, Queensway, Birmingham B3 3JY  
Manchester 081-833 0427 Blackfriars House, The Personage, Manchester M3 2JA  
Brussels 010 322-640 7161/71 Avenue Louise 327, Boite 4, 1050 Bruxelles

Specialist Computer Recruitment Ltd

## SYSTEMS ANALYSTS

APPROX £7,000 PACKAGE

Northampton based company involved in development of major financial applications involving on-line and batch systems, require analysts with appropriate experience. Knowledge of ICL equipment coupled with VME/B and IDMS would be advantageous but is not a prerequisite.

Package includes extremely attractive fringe benefits, excellent working environment with promotional prospects.

Phone Roger Carr on 021-233 2921 (24 hour service) or Hagley 885136

(evenings and weekends reverse charges)

Or write to Blackwood Associates, Freepost, Birmingham B2 4BR.

## Blackwood Associates Recruitment Consultants

26 Waterloo Street, Birmingham B2 5TJ.  
Telephone: 021-233 2921 (24 hr. service)

A Member of the CPS Group of Companies.

### CLASSIFIED COPY

All classified copy should reach our offices no later than 3.30 p.m. on the Monday preceding Thursday publication.

If complete artwork is supplied 11 a.m. on a Tuesday.  
Ring Ray Kelly for further details on 01-261 8018.

## SYSTEMS ANALYSTS

Two vacancies exist, one for a Senior Analyst and the other for a graduate. Attractive salaries will be paid commensurate with experience.

The Computer Services Department based in Derby is currently developing production control, contract cost control and financial systems, using data base and on-line techniques. The systems are currently based on ICL 2904 main frame with 7602 terminal processors and further hardware development plans are in hand.

The Company can offer to the successful applicant (either male or female) 31 days' annual holiday (including statutory) free life assurance, a contributory pension scheme, subsidised canteen facilities and an active sports and social club. A generous relocation package is available where appropriate.

Please write for an application form to Mr. P. L. Nice, Senior Personnel Officer at the address below and include brief details of age, experience, qualifications, current employment and salary.

NEI International Combustion Ltd.,  
Slinfold Lane, Derby, DE2 9GJ  
Telephone: 0332 760223



## Coliste na hOllscoil Corcaigh University College, Cork

### DIRECTOR OF COMPUTER BUREAU

The Computer Bureau is operated as a service unit for both academic and administrative departments. Interactive computing facilities are supported by an IBM 370/138 computer with 1-Mb of main memory and a Digital Equipment VAX 11/780, also in 1-Mb form.

In recognition of the increasingly important role of computers and the wider requirements for external services, the College has under consideration a proposal to incorporate a Regional Computing Centre in the Bureau.

Applications are invited for the post of Director, shortly to become vacant. Candidates should have extensive experience in the management of a major computing facility, preferably in an academic or research environment and should also have appropriate professional qualifications.

The salary scale is £12,496-£14,431 p.a.

Further particulars and application form are available from the undersigned to whom completed applications should be sent to arrive not later than Friday, April 18, 1980.

M. F. Kelleher  
Secretary

## EXCITING OPPORTUNITY FOR A SYSTEMS PROJECT LEADER

### IN ORPINGTON KENT Circa £9,000 per annum

We urgently require an experienced system designer to develop and manage the installation of new information systems in an on-line, database processing environment using mini-computers. Applicants will have the opportunity of making a major contribution to the development of data processing within the Harris Queensway Group. New systems are necessary due to the rapid expansion of our Company which primarily sells carpets and furniture through over 200 stores throughout Great Britain.

You should have the following experience and qualifications:

- A minimum of 2 years commercial systems design experience, preferably including on-line and data-base systems.
- Some knowledge of programming (preferably COBOL).
- Experience of mini-computer systems.
- The ability to deal directly with senior management and to work unsupervised in an unstructured environment.
- Experience in a retailing company would be advantageous but is not essential.

For further information please telephone or write to:

Roger Lawson  
Group Data Processing Manager  
Harris Queensway Group Ltd.  
78, High Street,  
Orpington, Kent: BR6 9LX  
Tel: 0689 36988

**HARRIS  
QUEENSWAY**

## PROGRAMMING PROJECT LEADERS PROGRAMMERS SYSTEMS ANALYSTS JUNIOR ANALYSTS

Our clients, a leading commercial organisation, require Data Processing professionals to join their expanding team at their Headquarters in Central Scotland. The Jobs ...

### PROGRAMMING PROJECT LEADERS

Function - To lead a team of Programmers engaged in computer systems design and program development.

Experience - A practical knowledge of COBOL and ASSEMBLER; Systems Design and Project Control. An IBM Mainframe background is essential.

Salaries - c £7500 + Benefits.

### PROGRAMMERS

Function - To be part of a team responsible for the writing and implementation of COBOL/ASSEMBLER.

Experience - At least two years' practical COBOL and ASSEMBLER either as a Programmer or Analyst/Programmer.

### BUSINESS ANALYSTS

Function - To aid the user departments in the solution of their business problems and define the necessary data processing service.

Experience - At the senior level, candidates should be educated to degree standard or equivalent, have at least 3 years' systems analysis experience and a general grounding in a commercial environment (eg: O & M, Accountancy).

### JUNIOR ANALYSTS

A number of these posts are also available with the same educational requirements, but with less practical experience.

Salaries - c £5500 to c £7500 + Benefits.  
Company Benefits include - reduced Mortgage Facility; Non-contributory Pension, offices located in rural area with excellent recreation facilities, yet within easy reach of major centres.

Telephone 031-226 5969 or 031-225 2711 to arrange an interview, or write enclosing a detailed CV to:

DML COMPUTER PERSONNEL SERVICES  
11 CHARLOTTE SQUARE  
EDINBURGH EH2 4DR  
Please quote reference CP/77/E

## COMPUTER ENGINEERS



Technicare supports the petrochemical industry overseas by providing the services of engineers to design, install and maintain computer and telemetry configurations and associated electronic instrumentation. Our client in Oman is a large European-managed oil company which is implementing a micro-based telemetry system to monitor, remotely, data generated by instruments installed in the production fields. This system will interface with a master computer at the company's head office.

To assist with the design and the maintenance of this system we wish to employ electronic engineers, some with DEC PDP11/70 experience, who will enjoy the challenge and variety this work offers. Those with HND or a degree will be preferred for the more senior posts. Good, tax exempt, salaries will be offered to suitable candidates.

Please write or phone for application form to:

Technicare International Limited  
Boyn Valley Road  
Maidenhead, Berks  
Tel: (0628) 32427

## EXPERIENCED COMPUTER SALES EXECUTIVES

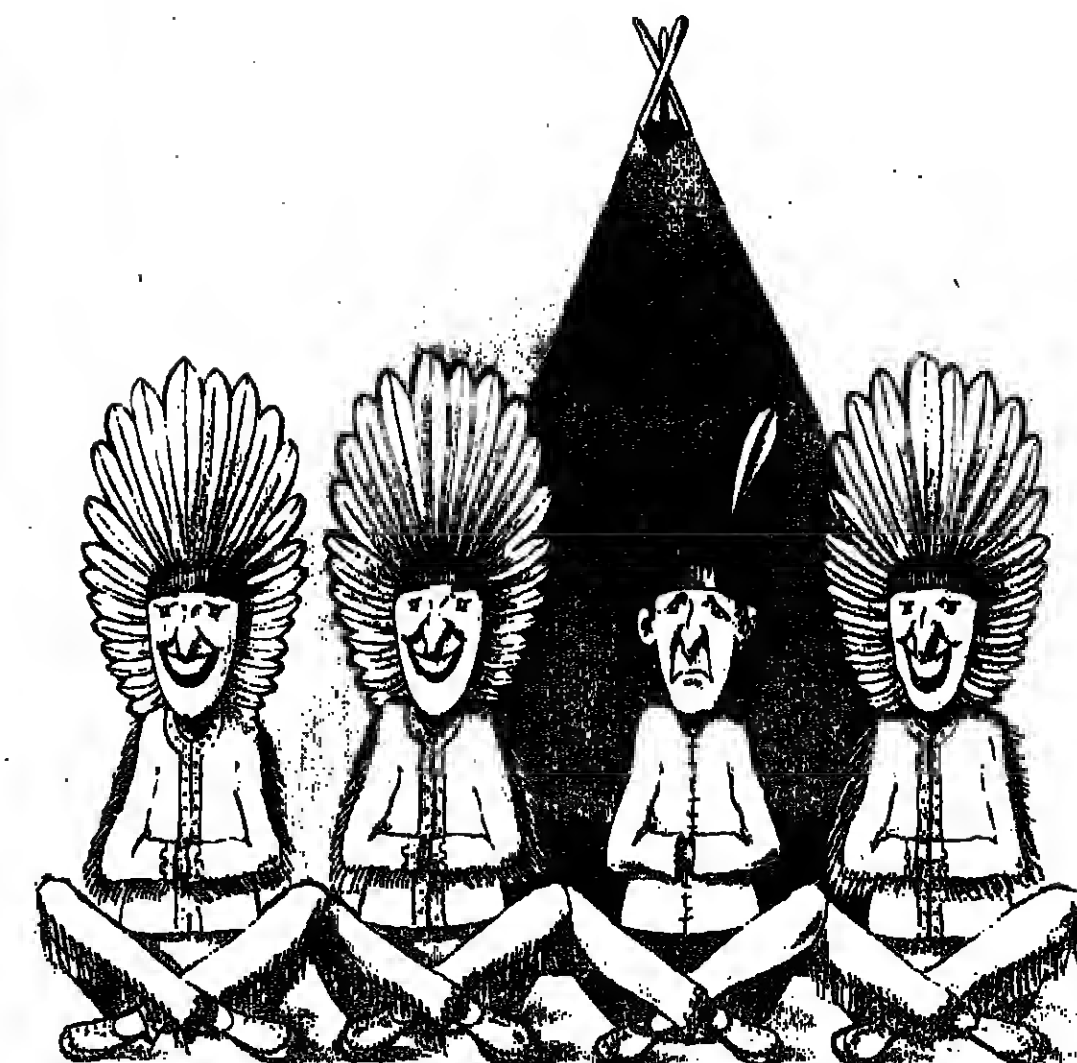
Total earnings circa £20,000  
Plus 2 litre car plus other benefits

Our Clients, a very progressive Company, are currently embarking on an extensive expansion programme. Selling ability, a responsible outlook and a knowledge of Commercial Business Applications are prime requisites. In return you will be offered very considerable rewards and early prospects for promotion. Preferred age group, 25 to 39 years.

FARNBOROUGH (0252) 516978 TO 10 p.m.  
OR CAMBERLEY (0276) 86447



Computer Consumer Advice Bureau Ltd.  
Computer and Recruitment Consultants  
1st Floor, The Parade, Farnham, Surrey



# MINICOMPUTER SALES

# £15,200\* + car

\*(On quota earnings, guaranteed during training commensurate with experience)

## Too many chiefs and you the only Indian?

Your tribe speak with forked tongue? You still no sit at council fire? You still wait chief go happy hunting ground leave empty moccasins? All hunt buffalo, no wampum? Heap bad medicine. You ride pony Ventek, him play whiteman. Him got plenty big opportunities for skilful braves.

To sell the internationally respected Datapoint range of minicomputers, backed by proven, purpose-built Datapak-B applications packages, it will make a new person of you.

Ventek, the fastest growing computer company, with one of the largest user bases in the UK, want salespeople and senior salespeople with sales management potential.

Come have pow-wow.

Write or telephone  
Sales Manager  
Commercial Systems Division  
Ventek Ltd  
Station House  
Harrow Road  
Wembley, Middlesex HA9 6ER  
Tel: 01-903 6261

# ventek computers



## RECRUITMENT CONSULTANT

Earning potential in excess of £10,000 p.a. + car

Datascene is one of the most successful recruitment Consultancies operating in the DP field.

We are looking for a consultant to join our highly successful team thus expanding our service to clients even further.

You will work closely with clients on all aspects of recruitment from job identification, giving advice on advertising, writing copy, interviewing and personnel selection.

You should be 22+ professional in approach and have a proven track record in DP. You will ideally be used to dealing directly with clients at all levels up to Senior Management.

This coupled with sound business sense and capacity for hard work should put you in the £10,000 + bracket within 1 year.

We offer an attractive salary package plus a company car after 6 months.

Please contact Mike Dauncey to arrange an interview on either of the above appointments on 01-439 1856

Datascene Recruitment Ltd  
Sceptre House  
169-173 Regent Street  
London W1R 7FB

**datascene**

**01-439 7871**  
24 hour answer phone

## CONTRACT SALES CONSULTANT

Earning potential in excess of £16,000 p.a. + car

We are looking for a person with a DP background who has the ability to succeed in a sales environment to join our team of consultants. Ideally you are working in a client contact situation at present.

The contract market is hard and highly competitive. You will need to be resilient, resourceful and extremely self-motivated. In return we will offer you relevant training and support, attractive commission only package, and an opportunity to develop your own area within our fast expanding organisation.

You will have your own area to find job requirements and negotiate contracts with clients.

0126

**ANALYSTS**  
**£8,000**  
**WEST LONDON**

Our client, a leading international manufacturer of consumables, is renowned for the quality of its products and management. The company policy is, to train its own management, and to offer excellent opportunities for early advancement for those prepared to work effectively. The data processing centre for the United Kingdom, which supports large operational teleprocessing systems, is located in outstanding modern facilities, surrounded by parkland, in the West of London towards Uxbridge.

### With The Ability To Put Problems Into Perspective

We are seeking Analysts who have the ability to show initiative and innovation for systems development to be based upon twin ICL 2970 hardware. They will offer at least one years commercial Analyst experience probably following a background in programming. Successful candidates will become part of one of several small and dynamic project groups, developing systems for production, distribution, financial and marketing applications.

The company offers a realistic salary plus annual bonus, generous discounts on group products, sports and social facilities and a relocation package if necessary.

Write or telephone Capp Associates quoting reference number for immediate attention.

Please telephone (24 hour answer service) or write to apply Quote Ref: CW114-F

**CAPP ASSOCIATES**  
**01-686 9693**

Computer and Professional Personnel Consultants  
**LONDON and MANCHESTER**  
AMP House, Dingwall Road, CROYDON CR9 2AU

1309

## Targa

### BASIC + PROGRAMMERS to £7000

#### C. London

A software house is currently undergoing a large recruitment campaign due to new products and enhancements on current systems. The minimum requirement is one year's BASIC/BASIC + within a commercial environment. The rapid expansion of this software house within the last few years is ample proof of excellent career progression within a young and friendly environment. As well as an excellent starting salary (according to age and experience) the client also offers 6 monthly reviews and a car allowance.

### JUNIOR PROGRAMMERS £NEG All Areas

If you have at least one year's commercial experience in a Mini or Mainframe environment and feel that you are under-utilised or career progression is poor, then do not hesitate to call us. We have many clients looking for Programmers at the Junior level in all areas of London and the Home Counties. Both salaries and perks are varied depending on the job but there are several financial institutions that offer Mortgage Subsidies.

### COBOL PROGRAMMERS £6500 C. London

A large financial organisation is currently seeking Programmers at all levels, the salary indicated is for 2 years' COBOL experience. The present hardware is an ICL 1900 but a 2980 is in the process of being installed, this therefore makes it an exciting time for anyone joining the company at the moment. Although the hardware is ICL this does NOT exclude applicants with good COBOL on other Mainframes. The company offers free lunches, season ticket loans, annual bonus, flexitime and an excellent Mortgage Subsidy.

### IBM OS Operations Support to £6000

#### IBM OS OPERATORS

Experienced staff required for 3-shift working in Central and North London. Good technical knowledge of OS/VS1 essential. **£6500c**

#### IBM OS OPERATORS

Experienced operators required for site in West London to work 3 shifts. Multi machine and hardware environment. **£6000c**

#### IBM DOS-SHIFT LEADER

An international bank in the City require an experienced Senior Operator or Shift Leader who is conversant with DOS/VS and POWER/VS. **£NEG**

#### IBM DOS OPERATORS

Vacancies in Central and West London for operators with a minimum of 12-18 months' experience. 2 and 3 shifts available. **£5500c**

#### IBM SYSTEM 3 OPERATORS

Sites in Central London require experienced operators to work various shift patterns on all models. **£5000c**

#### HONEYWELL OPERATORS

Vacancies exist for operators who have experience of GCOS or OS 2000 in and around London. **£NEG**

**TARGA COMPUTER SERVICES**  
46/47 LONDON WALL, LONDON EC2M 5TE  
**01-638 6381**

### ICL 1900/2903 to £7000

Two operators with 12 months' experience. 3 shifts, limited night work, well-paid overtime. Xmas bonus, Central London.

### ICL GII OPERATORS to £6000

12 months' GII experience required for Central London site. 3 shift system, good company benefits. Technical knowledge beneficial.

### ICL GEORGE II SENIOR OPERATORS £5000

North London site. 2 shifts, require GII operators with at least 12 months' experience. Training given on IBM Mainframe.

### UNIVAC OPERATORS £6200

Computer installations in London and Essex require Univac operators. 2 shifts, plenty of overtime, excellent pay reviews and benefits.

### MINI/PDP OPERATORS to £7000

Experienced operators required for numerous installations in London areas. Various shift patterns, salary up to £7000 and benefits.

### N.C.R. OPERATORS to £5900

2 operators with at least 6 months' Criterion experience required by Central London site. 3 shift system.

### DATA CONTROL £4500

West London installations require Data Control staff. Experience in either IBM or ICL GII systems. Tremendous prospects.

### GOVERNMENT OF BERMUDA SYSTEMS DEVELOPMENT OFFICER

BO\$23,043 — \$24,804  
(BD\$ = US\$ — NO INCOME TAX)

The Data Processing Unit, operating IBM G.S.O. Equipment, within the Ministry of Finance is seeking a DP Professional to perform the following functions:

- Take responsibility for the development of several major teleprocessing applications.
- Undertake design and analysis work as necessary for batch systems.
- Supervise and train programming staff.
- Select and maintain manufacturer's software.

#### Minimum educational requirements:

- A level standard in Maths and English Language, although these could be waived in the case of a candidate with an exceptional background of practical experience.

#### Experience is required in the following areas:

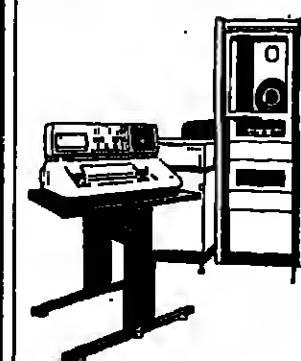
- A good all-round RPG11 and COBOL background.
- At least three years' CCP experience at a senior level.
- Responsibility for the design and implementation of at least three major systems.

The post calls primarily for a person with extensive "hands on" experience in the field of teleprocessing design and implementation.

Ability to communicate well, both verbally and in writing, is of course essential.

Applications giving full personal education and career details should be sent by AIR MAIL addressed to the Secretary to the Public Service Commission, Post Office Building, Hamilton B-24, Bermuda, not later than April 1st, 1980.

1209



### European Digital Systems

The European Digital Systems Division (EDSD) of Texas Instruments is a part of the Digital Systems Group which designs and manufactures high technology data terminals and distributed computing systems for commercial, industrial, medical and space research applications.

## Software Training Instructor to £8500

This is your chance to join one of the trendsetters of the mini-computer market. Our products are in the forefront of computer technology and are taking the commercial, industrial and O.E.M. markets by storm. We are a truly international organisation and are backed by the security and research capability of a billion dollar corporation.

We currently have an interesting career opportunity for a Software Training Instructor to conduct customer software courses on the use of T1690 COBOL, as related to the DS980 commercial systems. These courses are normally run in the U.K. training school in Bedford. However, you will need to be prepared to conduct some courses on customers' premises both in the U.K. and Europe.

Your additional responsibilities will be to:

- maintain strict control over all course-related material in the U.K. training library
- ensure that all courses reflect the latest revision of software
- co-ordinate with the Training Manager regarding course-related equipment and training requirements.

You will undertake specialised training in our

Education and Development Centre, located in Austin, Texas for a 3-4 week period.

You should preferably hold a degree in Computer Science, although we will consider applicants who can demonstrate a sound knowledge of the job function. Whilst we are seeking someone who has been, or is currently employed teaching COBOL, experienced COBOL programmers who demonstrate a genuine interest in training will also be considered, as instructional techniques training can be arranged. The most important factor is the ability to effectively communicate with people.

You will be based at our U.K. Headquarters in Bedford, an easily accessible area set in attractive countryside, with reasonably priced housing and many amenities available.

Starting salary is up to £8,500 p.a. on a rising scale designed to reflect achievement and success. Excellent benefits include profit-sharing, free medical plan, pension and life assurance scheme and extensive sports/social facilities.

In the first instance please write with full details to: Ann Stevens, Texas Instruments Limited, Merton Lane, Bedford, or telephone her for an application form on Bedford (0234) 67466.



**TEXAS INSTRUMENTS LIMITED**

...where people and technology meet

11031

**COMPUTER WEEKLY CLASSIFIED**  
the newspaper  
computer people rely on  
**01 261 8028/8097/8019**

### BOX Nos.

Box number replies should be addressed to:

Box No. 1  
c/o Computer Weekly  
Dorset House  
Stamford Street  
London SE1 9LU

### £6,500

Installation Supervisor with some commercial experience is required to control and rapidly develop new SBO installations in a progressive public company in N.W.1. Will report daily to Managing Director.

This is a new position and would suit an operator wishing to further their career.

Please reply to Norma Cozens, CMG (Middlesex) Ltd, Westway House, 220 Rutland Road East, Greenford, Middlesex.

11261

### FIELD SALES TECHNICAL SUPPORT ENGINEER

To work on, State of the Art Data Transmission Systems. The applicant must have a degree, HNC or equivalent qualification in Electronic Engineering with a minimum of 3 years' experience of modern and related digital transmission equipment and telephone line and other analogue transmission systems. A current clean UK driving licence is essential. Attractive salary.

**MAGWELL SYSTEMS LTD.**  
The Magwell Group, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.



**FOR  
ALL OUR  
RECRUITMENT  
ADVERTISERS**

# An exclusive opportunity to pioneer in the most advanced recruitment medium of the 80's

We invite you to join us in pioneering what may well be the biggest breakthrough in computer recruitment history.

IPC Electrical-Electronic Press Ltd. have launched a Prestel Viewdata appointments service for computer personnel — the first of its kind — and Computer Weekly advertisers are being given an exclusive opportunity to use it.

For just £75 extra, any position advertised in Computer Weekly will also be announced on Prestel screens for five days. The screen announcements will contain the main details given in the Computer Weekly advertisement. And this special computer appointments service will have its own key access number on Prestel.

The Prestel information service is now available in public libraries, universities and computer centres across the country — and many key computer personnel are already regular users. Your advertisement will be telecast on Prestel the day we receive it — up to six days before it appears in Computer Weekly itself — which could enormously increase the speed of response as well as the number of replies.

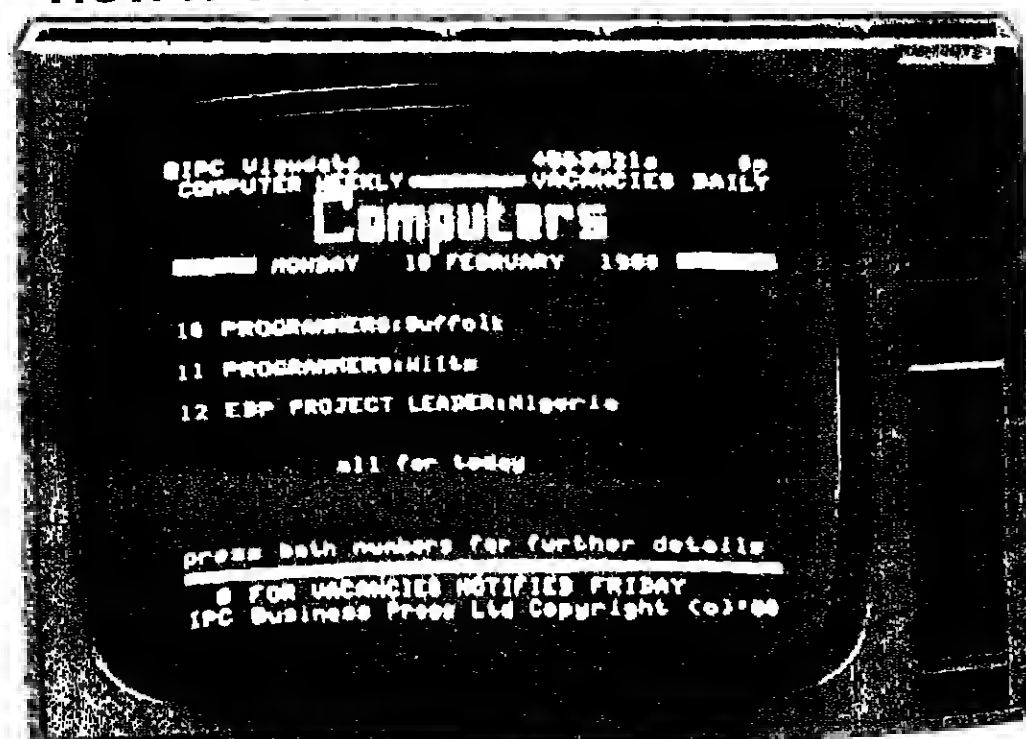
Start your 1980s recruitment programme by harnessing the key information medium of the new decade. Contact Brian Durrant, Classified Advertisement Manager, IPC Electrical-Electronic Press Ltd., Dorset House, Stamford Street, London SE1 9LU. Tel: 01-261 8597.

## COMPUTER WEEKLY

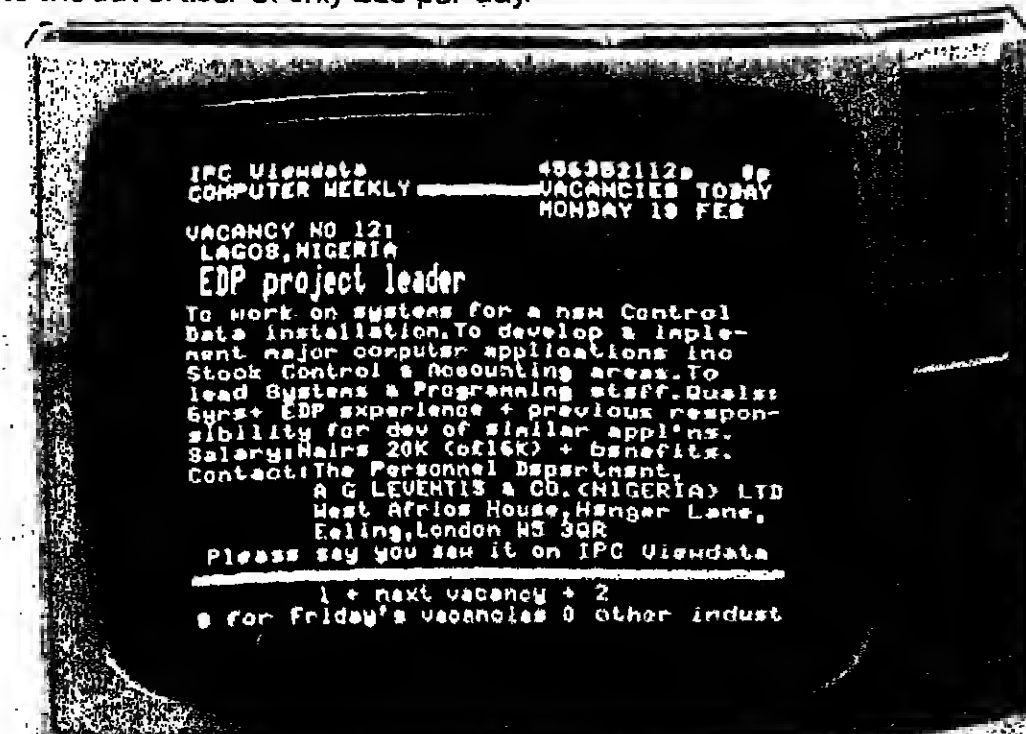
in association with IPC Viewdata

Note: A parallel service is available to Electronics Weekly recruitment advertisers.

### HOW IT WORKS



On dialling the computer appointments number, applicants are immediately informed what jobs are available for the day, and given a key number for each. They can also obtain details of the previous four days' vacancies, so that each job is in effect on offer for a working week, at a cost to the advertiser of only £15 per day.



On pressing the specific job's key number, applicants are given full details of the vacancy (if there's room, all the details that you have in your appointments ad) including how, where and when to apply. This amounts to a 5-day recruitment campaign, screened to a highly select audience.

## SYSTEMS ANALYSTS HOLLAND

up to £12,000 neg.

This major Dutch marketing company plan to replace their current system with a 4341 capable of handling a large Database with on-line facilities from remote Dutch and Belgian locations.

Two systems analysts are required to join an existing team developing a package designed for current ordering and invoicing and a central stock system covering a wide range of products.

Candidates should have a minimum of three years' experience coupled with either a programming background and/or commercial experience in accounting or administration. A knowledge of database systems and/or T.P. is required. The company will sponsor machine-orientated training and other supporting computer education.

An excellent salary package is offered including relocation and initial subsistence allowance depending on the particular domestic situation. The Dutch education system is capable of integrating non-Dutch-speaking children into certain schools and the company sponsors employees on a formal Dutch language course. Candidates who could not plan to spend two or more years with the company are unlikely to be considered.

Contact Jack Cowdy, Director  
on 01-603 7335

**Information Processing People**  
55 Pembroke Road, London W8 Tel: 01-603 7335  
Computer Services & Recruitment Consultants

**UNIVERSITY OF SOUTHAMPTON**  
FACULTY OF MATHEMATICAL  
STUDIES  
COMPUTER STUDIES GROUP  
Applications are invited for the posts of  
**LECTURER and**  
**TEMPORARY LECTURER**  
in Computer Studies in the Faculty of Mathematical Studies. The persons appointed will be required to teach all aspects of computer software at Honours level, and to give elementary programming courses to students from all disciplines. They should have active research interests in some branch of computer software. A Ph.D. in Computer Science is desirable, but not essential if an applicant has adequate relevant experience. The posts are tenable from 1 September 1980. The temporary appointment will be for one year. Salary on the scale £5,052 to £10,464 per annum with U.S.S. superannuation benefits. The starting salary will depend on age and experience. Further particulars are available from Mrs. E. C. P. Sear, Bursar, The University, Southampton SO8 9AH, to whom applications (7 copies from United Kingdom applicants) should be sent not later than 10th April, quoting reference 1908/A. (73)

**UNIVERSITY OF EAST ANGLIA**  
Norwich  
Applications are invited for the newly established post of  
**LECTURER IN**  
**MICRO-ELECTRONICS**  
The appointment will start as soon as possible. Candidates will be given to candidates with a suitable background in digital electronics or computing studies. Preference may be given to candidates with industrial or commercial experience in the design of micro-processor systems, their incorporation within industrial systems, industrial production, or experimental systems or in the development of their applications. The salary will be at an appropriate point on the Lecturer scale (£5052-£10464 p.a. plus USS benefits). Applications (one copy) which should contain a full curriculum vitae, including exact date of birth together with the names and addresses of three persons to whom reference may be made, should be lodged with the Establishment Officer, University of East Anglia, Norwich NR4 7TJ, from whom further particulars may be obtained. Telephone 0693 55181 ext. 2120 by the 15th April 1980. No form of application is issued in naming three referees you are requested to give only the names of those who can immediately be approached by the University. (72)

## MYRIAD

### COULD YOU BE A RECRUITMENT CONSULTANT?

LONDON

£8000-£12000

If you are interested in recruitment but do not have the necessary experience Myriad may be able to give you the opportunity to train as a Recruitment Consultant.

As one of the major companies in our field with a well-established professional reputation, we have both the resources and expertise to train you in the skills needed to carry out this challenging and rewarding work.

You must have a background in the computer industry, such as programming, analysis or any related sales oriented position. Without this essential grounding you could not be expected to give career advice to applicants or advise clients in major recruitment assignments. Under 30 you should possess the potential to succeed in highly sales oriented situations in which you will have the freedom to work very much on your own initiative.

The wide range of activities encompassed by the work will undoubtedly surprise you. You will also be interested in our training and career development. To find out the answers and much more about the varied and interesting life as a recruitment consultant, contact us to arrange an informal discussion and we will also tell you about the outstanding long-term career opportunities available.

AW1/1303

**MYRIAD APPOINTMENTS LIMITED**  
30 Fleet St London EC4Y 1AA Tel 01-353 0981 24 hrs

### THE CHINESE UNIVERSITY OF HONG KONG LECTURER IN COMPUTER SCIENCE (2 posts)

Tenable from August, 1980. Applicants should have a higher degree, preferably a Ph.D., in Computer Science or a related field. To teach Information Systems Analysis, Systems Design and Implementation and Data Structures, relevant experience and research interests in data organisation and retrieval, software design and management information systems preferred; OR to teach Computer Systems (Hardware and Software), Computer Organisation, Machine Structure and Assembly Language, Operating Systems, Compiler Design, relevant experience and research interests in two or more of the above topics preferred.

ANNUAL SALARY (in Hong Kong dollars and currently under review) \$87,920-\$77,040 by two increments \$88,181, \$90,113, \$92,045 by 7 increments. (Exchange rate £1 = HK\$11 approximately.) Starting salary and the grade to which the appointment is made will depend on qualifications and experience.

CONDITIONS OF SERVICE include superannuation benefits (University 15%, appointee 5%), medical benefits, education allowance for children, paid long leave, housing benefits (for local appointees at salary points above the bar on the Lecturer scale) and, for those employed on overseas terms, housing accommodation and air passages as well. APPLICATION forms and further information are obtainable from the Personnel Section, The Chinese University of Hong Kong, Shatin, N.T. Hong Kong. Completed forms together with copies of recent testimonials and one set of major publications should be returned before April 30th, 1980. Please mark "Application" on cover. (71)

### PLAN YOUR CAREER WITH PRESCOT ENGLAND, NEW ZEALAND SOUTH AFRICA & AUSTRALIA

Careful planning often makes the difference between the successful and the unsuccessful computer career. Prescott Computer Recruitment and the selection for an overseas post requires extra care by Prescott, employer and employee. We use the same principles of care whether UK only or overseas employment is involved.

We always wish to interview PROGRAMMERS, SYSTEMS ANALYSTS, ANALYST PROGRAMMERS, CONSULTANTS AND SALESPERSONS for a broad range of clients in England, New Zealand and South Africa. Salaries range from £4,000 to £16,000 p.a. If you are interested, why not telephone Prescott on 01-484 2080 for an informal discussion. Alternatively if you prefer write to him at: PRESCOT COMPUTERS LIMITED, 21 Conduit Street, London W1B 9PB. (61)

## Excellent Contract Opportunities

In line with our rapid growth rate we have a continuous requirement for skilled and dedicated professional contract staff.

**Mark IV Analyst/Programmers**  
USA, West Africa, Germany and UK

**IMS DB/DC Expertise**  
London, Home Counties

**Assembler CICS or VTAM expert** Essex

**Cobol/CICS Analyst/Programmers**  
London, Home Counties

**DOS/VS Systems Programmers** Middle East  
**Systems 34 Analysts Programmers** City

**Univac 1100 Analyst/Programmers**  
London, Essex

**RPG Senior Programmers** Essex

**PL1 Analyst/Programmers**  
London, Home Counties

**IBM Cobol Analyst/Programmers**  
London, Home Counties

**Redifon Programmers** London



For more information telephone  
**Alan King**  
**TANGENT COMPUTER SERVICES**  
4 Eastern Road  
Romford, Essex  
Tel: Romford 44181/2 26235

## ANALYST/ PROGRAMMERS

£8000 - £10000

## PROGRAMMERS

£6000 - £8000

## IBM Cobol/PL1/Mark IV

We are one of the top consulting companies in America. We have very recently opened our London office and have openings at most levels in system design, application programming, data base design and teleprocessing. Our clients include banks, insurance, oil, commercial and industrial companies. The work is interesting and varied offering on-going training, career development and the option of 6-24 month transfers to one of our U.S. offices.

To arrange an interview (expenses paid) write now enclosing your c.v. or telephone Roger Barnes at:

**SOFTWARE DESIGN ASSOCIATES**  
4-6 Copthall Avenue, London, EC2H 7DA  
Telephone: 01-828 4200  
and at New York City, Chicago, Union NJ, Greenwich & Farmington CT, Philadelphia PA

# SDA



## Heads of Computing Services

Salary £11,181 x £255 (3) to £11,946 per annum.  
(Comparability award pending)

The County Council has the highest of reputations for progressive duty processing and intends to utilise the latest technologies to the full in the future. There are at present two powerful computers, an IBM 370/155 and a DEC VAX 11/780, serving over 120 terminals of different kinds and a wide variety of applications for the County Council departments and other authorities in the area. There is, however, considerable demand for the provision of more computing services and plans are being finalised for the ordering of equipment and reorganisation of the Data Processing Division to meet the challenge of the future. The salary of the post is based on a proportion of the scale for Chief Officers of the Authority.

The Head of Computing Services is responsible to the County Treasurer for the management of the Data Processing Division and the co-ordination of all the Council's computing services and applicants should be well experienced in the senior management of large computer installations.

Excellent removal and resettlement expenses payable in approved cases.

Applications, with full details of experience, education and professional qualifications, together with the names of two referees, should be sent to the County Treasurer, County Hall, Chichester, West Sussex PO19 1RG, to reach him by 24th March, 1980.

## West Sussex County Council

## Hounslow

(London Borough of)

EDUCATION COMMITTEE  
Education Office, Civic Centre, Lampton Road  
Hounslow, Middlesex TW3 4DN

### RE-ADVERTISEMENT

Required for SEPTEMBER, 1980

### PERIPATETIC ADVISORY TEACHER OF COMPUTER STUDIES

(Senior Teacher Grade)

A teacher with substantial recent experience of teaching computer studies in secondary schools is required. The person appointed should be prepared:

- To advise on the choice of syllabus, its interpretation and to devise effective and efficient teaching schedules
- To co-ordinate the basic processing and computer terminal work on schools in the Borough
- To help teachers faced with technical and other problems in the use of these services
- To organise the in-service training of teachers who wish to teach Computer Studies

LONDON ALLOWANCE £408 PAYABLE  
CLOSING DATE: 3 APRIL, 1980

Further particulars and application forms are available from the Director of Education, London Borough of Hounslow, Civic Centre, Lampton Road, Hounslow, Middlesex TW3 4DN, to whom they should be returned by the closing date (enclosed stamped addressed envelope, please).

The Education Committee has power to consider applications from experienced teachers for assistance toward removal, disturbance or separation expenses.

A GROVES  
Director of Education

European Support Organisation of a highly successful American Manufacturer of Small Business Systems seek for its Monaco Base

## SOFTWARE SUPPORT SPECIALIST

to assist an expanding network of European Distributors. Applicants should be fluent in English and preferably German and French and experience in two of the following:

- BUSINESS APPLICATIONS SYSTEMS DESIGN AND BASIC LANGUAGE
- BASIC OPERATING SYSTEM AND FILE MANAGEMENT CONCEPTS FOR MULTI-TESTING MICRO COMPUTER SYSTEMS WITH DISKETTE AND DISK MASS STORAGE
- PRACTICAL USE OF DATA COMMUNICATIONS IN DISTRIBUTED PROCESSING ENVIRONMENT

Applicants must be willing to travel considerably throughout Eastern and Western Europe and occasionally further afield and be able to teach high-level programming methods and systems architecture in relation to the product range. Relocation assistance will be given to successful applicants.

Please apply in writing, giving outline of current situation, qualifications and relevant experience to Brook P. Taylor or Roy J. Good, L'Esportel Avenue Princess Grace, Monte Carlo, Principality of Monaco.

## OPERATIONS

DATA CONTROL-UNIVAC £5,500-£7,500  
Univac site in Central London requires experienced data controller with sound knowledge of Exec. 8 and V.C.L. Oays only. Ref. J2844

SHIFT LEADER-IBM to £6,800  
Installation on Surrey/London border are looking for a shift leader with several years' DOS Power/VS and CICS exp. Ref. C2874

SHIFT LEADER-ICL circa £5,800  
Small, friendly firm in Herts are currently looking for an ops wtd 2 yrs. + ICL exp. Ref. J2860

SENIOR OP-IBM to £6,500  
3 yrs. + DOS/VS Power exp. required for this installation based north of London. Some OS exp. an advantage. Ref. C2566

OPERATOR-BURROUGHS £6,000  
City-based company are currently looking for an operator with 3 years' exp. although other Burroughs knowledge will be considered. Ref. J2220

OPERATOR-IBM £6,000  
Central London site are looking for an operator with 18 mths' DOS/VS Power exp. Day and ovgs. only. Ref. C2869

24-hour Answerphone

**DATAPOWER**  
COMPUTER EMPLOYMENT LTD  
437 5994  
Suite 504 5th Floor, Triumphant House,  
100, Regent St., London W1

## THE CHINESE UNIVERSITY OF HONG KONG LECTURER IN COMPUTER SCIENCE (2 posts)

Tenure from August, 1980.

Applicants should have a higher degree, preferably a Ph.D., in Computer Science or a related field. To teach Information Systems Analysis, Systems Design and Implementation and Data Structures, relevant experience and research interests in data organisation and retrieval, software design and management information systems preferred; OR to teach Computer Systems (Hardware and Software), Computer Organisation, Machine Structure and Assembly Language, Operating Systems, Compiler Design, relevant experience and research interests in two or more of the above topics preferred.

ANNUAL SALARY (in Hong Kong dollars and currently under review) \$67,820-\$77,040 by two increments BAR \$81,800-\$113,520 by 7 increments. (Exchange rate £1 = HK\$11 approximately.) Starting salary and the grade to which the appointment is made will depend on qualifications and experience.

CONDITIONS OF SERVICE include superannuation benefits (University 15%, appointee 5%), medical benefits, education allowance for children, paid long leave, housing benefits (for local appointees at salary points above the bar on the Lecturer scale) and, for those employed on overseas terms, housing accommodation and air passages as well.

APPLICATION forms and further information are obtainable from the Personnel Section, The Chinese University of Hong Kong, Shatin, N.T. Hong Kong. Completed forms together with copies of recent testimonials and one set of major publications should be returned before April 30th, 1980. Please mark 'Application' on cover.

## Midland Recruitment Feature March 20th

For further  
details contact  
**Stan Harris**  
on 021-356 4838

## BOX Nos.

Box number replies should be addressed to:

Box No. ....  
c/o Computer Weekly  
Dorset House, Stamford Street, London SE1 9LJ

## SINGAPORE AIRLINES

require

## SYSTEMS ANALYSTS SYSTEMS PROGRAMMERS

to be based in Singapore

SIA recently installed two IBM 3031 and an ITEL AS/5 computers. Several on-line end database systems are being planned for implementation in the next few years. IBM software used include ACP/IPARS, IMS-OB/DC, OS/VS1, VM, CMS and APL.

Computer professionals who possess a University degree and at least two years' data processing experience are invited to apply for the positions of Systems Analysts and Systems Programmers based in Singapore. Applicants must be either Singapore or Malaysian citizens.

Salary will be commensurate with qualifications and experience.

Attractive fringe benefits include:

- \* free travel on company services during annual leave and concessional travel on attractive terms on other carriers; and
- \* free medical and dental treatment.

Applications containing full personal particulars including telephone numbers should be sent to:

Information Services Manager  
c/o Administration Manager  
SINGAPORE AIRLINES LIMITED  
580-586 Chiswick High Road  
London, W.4

before 27 March, 1980.



A team will be in London on 31 March and 1 April to conduct interviews.

Applicants should contact SIA London Administration Department at telephone number (01) 995 4901 for appointments.

## SINGAPORE AIRLINES

require

## COMPUTER PROJECT MANAGERS

to be based in Singapore

SIA recently installed two IBM 3031 and an ITEL AS/5 computers. Several on-line end database systems are being planned for implementation in the next few years. IBM software used include ACP/IPARS, IMS-OB/DC, OS/VS1, VM, CMS and APL.

To meet our plan, we are looking for computer professionals with a University degree and at least a few years' data processing experience at a senior level for appointment as Computer Project Managers. Successful applicants will be employed on a 3-year contract.

Salary will be commensurate with qualifications and experience.

Attractive fringe benefits include:

- \* free travel on company services during annual leave and concessional travel on attractive terms on other carriers; and
- \* free medical and dental treatment.

Applications containing full personal particulars including telephone numbers should be sent to:

Information Services Manager  
c/o Administration Manager  
SINGAPORE AIRLINES LIMITED  
580-586 Chiswick High Road  
London, W.4

before 27 March, 1980.



A team will be in London on 31 March and 1 April to conduct interviews.

Applicants should contact SIA London Administration Department at telephone number (01) 995 4901 for appointments.

Tenworth Borough  
Council  
Borough Treasurer's  
Department

## COMPUTER PROGRAMMER

AP3 £4080-£4533  
per annum

Applications are invited from suitably qualified programmers to the above post in a small but busy section responsible for the operation of the Council's computer (see IC, 28/4). Applicants should be familiar with COBOL and knowledge of ICL terminal programming language or ICL software would be an advantage.

The post offers the opportunity to develop experience in a rapidly developing environment.

Fringe benefits:  
• 100% removal expenses.  
• £400 towards legal expenses arising from house purchase within the Borough area.  
• Housing accommodation of £14 a week, lodging allowance for 8 months.

Application form and job description are available from the undersigned.

Closing date: March 28, 1980.  
H. B. Lusk, Town Clerk and Chief Executive, Municipal Office, Church Street, Tenworth B79 7BZ Tel. (0827) 3581, Ext. 528. (13)

## SOFTWARE HOUSE

needs

## CONTRACT PROGRAMMERS

with 5+ years' commercial applications experience for immediate start.

Reading (0734) 790879  
or 01-247 1128 (B3)

## Computer Manager Analyst Programmer

R. White & Sons Limited, the soft drinks division of Whitbread, presently have vacancies for a Computer Manager and an Analyst/Programmer in their modern EAST LONDON headquarters.

Our hardware consists of an ICL 2904/50 with EDS 60's communicating with a number of depot and factory locations throughout the U.K. via a terminal system driven by two ICL 7502 mini computers. The main systems installed include supply control and management reporting, and plans exist for further major developments.

### Computer Manager c. £9,500+car

This position holds responsibility for the smooth and efficient running of our computer section.

Applicants should have a minimum of 3 years experience in both COBOL programming and systems analysis, preferably with an ICL hardware background.

In addition applicants should be able to demonstrate experience in team management and project control. This position may suit a Senior Analyst/Programmer who wishes to progress further into computer management.

### Analyst/Programmer c. £6,500-£7,000

The ideal candidate will have 2 years COBOL programming experience, backed up by 1 years systems analysis work. A general commercial awareness is essential and any business planning knowledge would be advantageous.

In addition to attractive salaries the Company offers a wide range of fringe benefits as befitting to a member of the Whitbread Group.

For further information or an application form please contact:

Miss D. G. Sharp, R. WHITE & SONS LIMITED,  
Winsor Terrace, Beckton, London E6 4LF.  
Tel: 01-474 9200.



## EXPERIENCED COMPUTER SALES EXECUTIVES

Total earnings circa £20,000  
Plus 2 litre car plus other benefits

Our Clients, a very progressive Company, are currently embarking on an extensive expansion programme. Selling ability, a responsible outlook and knowledge of Commercial Business Applications are prime requirements. Return you will be offered very considerable rewards and early promotion. Preferred age group: 25 to 39 years.

FARNBOROUGH (0262) 516978 TO 10 P.M.  
OR CAMBERLEY (0276) 65447



Computer Consumer Advice Bureau Ltd  
Computer and Recruitment Consultants  
1st Floor, The Parade, Farnley, Bury

## CLASSIFIED COPY

All classified copy should reach our offices no later than 5.30 p.m. on the Monday preceding Thursday's publication.

If complete artwork is supplied, 12 noon on a Tuesday.  
Ring Ray Kelly for further details on 01-261 8016.

## IBM DOS SHIFT LEADER

C London

A minimum of 2 years' DOS operating experience is a requirement for this Computer Services Co. based in C. London. Applicants will be self-motivated and conscientious, and should be conversant with both JCL and Utilities. The successful applicant can expect rapid promotional prospects. REF: JK1

## IBM OS VS1/MVS OPERATORS

VARIOUS

We have a number of clients in C. London and the Home Counties who are seeking Operators with 12 months' + OS exp. Positions are available on both 370 and New Renga 3030 Series equipment. Two of the vacancies currently available carry subsidised MORTGAGE. REF: JK2

## IBM NETWORK CONTROLLER/ SCHEDULER (DAYS)

W. LONDON

to £8000

## IBM TERMINAL CONTROLLER (DAYS)

CITY

to £8000

Major commercial concern with IBM Mainframe Operation based in W. London is seeking to recruit persons for the above vacancies.

For the position of Network Controller, an experienced Shift Leader/Sen. Op. is sought with a good OS VS POWER VS background and a thorough understanding of the CICS TP System.

For the position of Terminal Controller (based in C. London) the successful candidate will possess good supervisory skills and a thorough knowledge of the OS VS POWER VS Operating System.

Benefits include annual BONUS, sub. canteen and superb sports facilities. REF: JK3

## IBM OS VS1 OPERATOR

CITY

£5800

This is an excellent opportunity for an Operator with 12 months' + OS VS1 experience, to join a leading financial organisation. Applicants are invited from mature, intelligent and technically competent Operators, seeking a position within a highly professional and efficiently run Operations environment. Prospects for career development are excellent and fringe benefits inc. sub. MORTGAGE, annual BONUS, LV's and mileage allowance. REF: JK4

## Computer TwoThousand Ltd

Data Processing Consultants

217-218 Tottenham Court Road

London W1P 9AT

Tel: 01-636 7584 (24 hrs)



## ASSISTANT ENGINEER

Real Time Communications  
Systems

Potters Bar up to £7807

Eastern Gas use a number of minicomputer and microcomputers for Distributed Telemetry and Control and for Message Switching. These systems operate over a large private microwave radio network which provides all the Regional Speech and Data communications services.

A qualified person is required within the Data and Computer Group to assist in the expansion, development and replacement of these digital systems. The duties will involve the design and realisation of "stand alone" programs through to complete systems for various computers ranging from large minis to microprocessors. The work will also involve the selection of computer hardware, peripheral equipment and software packages. Candidates should preferably be educated to degree; H.N.C. level with a minimum of two years Assembler experience. A knowledge of CORAL 66 will be an added advantage. Some travel will be involved and a current driving licence is essential. Salary within the range £6249 to £7392 plus £415 Metropolitan Weighting.

Application forms quoting ref. 1600 CW can be obtained from the Senior Recruitment Officer, Eastern Gas, Star House, Mutton Lane, Potters Bar Herts. EN6 2PD. Telephone Potters Bar 51151 Ext 485. Closing date for applications 27 March 1980.

## EASTERN GAS

# COMPUTER WEEKLY CLASSIFIED

01 261 8028/8097/8019

the newspaper computer people rely on

01 261 8028





## In its Third Year, back at the WEST CENTRE HOTEL

**Lillie Road** (near Earls Court)  
**London, S.W.**  
**APRIL 16 and 17**

Admission free by registration at the door.  
Opening hours 10 a.m.-6 p.m.

# FOR PROFESSIONAL PURCHASERS OF COMPUTER PERIPHERALS, TERMINALS AND ADD ON UNITS

Twice the size of the previous event, with many more exhibitors showing their products and services in the relaxed atmosphere of a first-class hotel exhibition centre. They include:

**Advent Data Products**  
**Anadex**  
**Cifer Systems**  
**Comart**  
**Cristie Data Products**  
**Control Data Corp.**  
**Datum Electronics**  
**Datac**  
**Data Dynamics**  
**Data Recording Co.**  
**Data Resources**  
**Delta Data Systems**  
**Euro Electronic Instruments**  
**Feedback Data**  
**Fastcol**  
**Geveke Electronics**  
**Globe Computing**

**Heywood Electronics**  
**Heywood Electronics**  
**International General Electric**  
**P.C.M.L.**  
**Penny & Giles**  
**Pragma**  
**Quest Automation**  
**Rack-Data**  
**S.E. Labs (EMI)**  
**SEN Electronics**  
**Sintrom Electronics**  
**Techex**  
**Teleprinter Equipment**  
**Wessex Electronics**  
**3M's**  
**Trend Communications**

Presented by the Peripherals Suppliers Association and I.P.C. Electrical-Electronic Press Sponsored by Systems International with the support of Computer Weekly and Data Processing. Dorset House, Stamford Street, London SE1 9LU.

## Programmer

c. £5,500

Berks

Johnson & Johnson, leading international manufacturers of health-care and baby products, operate a highly efficient DP department at their Slough headquarters which is of vital importance to the company's continuing pattern of growth. The present installation is an IBM 370/138 with VDU's and 3740 transmission equipment at local and remote locations. The major programming language is PL/I with DL/I as the database software. A.P.L. and D.M.S. are currently being implemented. We have a vacancy for a Programmer with a minimum of one year's programming

experience, preferably PL/I - although training will be given where necessary. As a major international company, Johnson & Johnson can offer excellent career prospects. Salary is negotiable circa £5,500 p.a. depending upon qualifications and experience and there are a wide range of benefits including the advantages of flexitime. Relocation expenses will be paid where appropriate. Write with full details or telephone for an application form to: Susan Turner, Personnel Analyst, Johnson & Johnson Limited, 280 Bath Road, Slough, Berks, SL1 4EA. Tel: Slough 31234, Ext. 446.

**Johnson & Johnson**

## Program YOUR way into management

Union Carbide UK Limited, a wholly owned subsidiary of the multi-national Union Carbide Corporation, manufacture a range of capacitors at their modern electronics plant, situated at Aycliffe, Co. Durham. In line with the majority of modern industry today, our operations rely more and more on high level computer technology and a first class opportunity has now arisen for an experienced professional to move into a management role.

### D.P. Systems Co-ordinator

North East

You will be responsible for the control of an IBM system 34 installation where the main application areas will be in sales and manufacturing services. This position will involve the maintenance of procedures and applications to meet user's needs as well as the ability to develop on-line interactive applications.

Ideally, you should have 3 years experience with IBM systems and at least 2 years programming experience, preferably with RPG II. You will need practical experience in systems design combined with experience of subsequent application installation. The Department has an operations staff of three directly under your control, so supervisory experience would be an advantage. Essential is the ability to liaise and communicate effectively at all levels.

Career prospects for an ambitious man or woman, willing to make a real contribution in this field are second to none and salary and benefits package will reflect the level of experience and professionalism we expect from interested candidates.

Please write or telephone in the first instance, with relevant career details to date to:

Mr. Higgins,  
Divisional Personnel Manager,  
Union Carbide UK Limited,  
Electronics Division, Hilton Road,  
Aycliffe, Co. Durham.  
Telephone 315181.

**UNION  
CARBIDE**

## PROGRAMMER

CITY

c. £8000

This progressive, well-established organisation, who for many years have supplied a specialist computer services to the insurance industry, have a vacancy for a Senior Programmer to work at their City Office.

The successful candidate will be a key member of a small team of programmers, involved in research and statistics. You will have 2 1/2 years IBM COBOL experience and be able to supervise the small team of programmers, produce program specifications and maintain in-house software.

The rewards with this company include mortgage subsidy, free lunch, free pension and life insurance together with an excellent starting salary. In the first instance, please telephone for an application form or send your details to C2000. All applications will be dealt with promptly and in the strictest confidence. REF: AL/1

Computer Two Thousand Ltd  
100 The Quadrant, (overlooked)  
207-218 Tottenham Court Road  
London W1P 9AF  
Tel: 01-636 7584 (24 hrs)

**2000**

## UNIVERSITY OF SOUTHAMPTON FACULTY OF MATHEMATICAL STUDIES

COMPUTER STUDIES GROUP

Applications are invited for the post of

### LECTURER and TEMPORARY LECTURER

In Computer Studies in the Faculty of Mathematical Studies. The person appointed will be required to teach all aspects of computer software at Honours level, and to give elementary programming courses to students from all disciplines. They should have active research interests in some branch of computer software. A Ph.D. in Computer Science is desirable, but not essential if an applicant has adequate relevant experience. The posts are renewable from 1 September, 1980. The temporary appointment will be for one year. Salary on the scale £5,062 to £10,484 per annum with U.S.S. superannuation benefits. The starting salary will depend on age and experience.

Further particulars are available from Mrs E. C. P. Sainsbury, Section 509, The University, Southampton SO9 5NH, to whom applications (1 copy) from United Kingdom applicants should be sent not later than 1 Oct. 1979, quoting reference 1008/A.

(173)

**CHIEF PROGRAMMER CITY** to £8500  
Lead small team. Experience of RPG 2, IBM SYSTEM 3  
**HARDWARE PRODUCTION**  
**MANAGER WILTS** to £9000  
Electronics background, resp. for production assembly, testing of Micro  
**CHIEF OPERATOR/OPS. SUPERVISOR M100X.** to £7500  
Days and nights. Must have exp. of Univac 9000 series or IBM System 34.  
**SYSTEMS ANALYSTS LONDON & CITY** to £9500  
Self-starters. General accounting or Commercial experience.  
**SALESMEN LONDON & S.E.** to £18000  
Sales experience in business oriented environment.  
**PL1 PROGRAMMERS LONDON** to £8200  
Learn CICS, REAL TIME and DATA BASE.  
**ANAL/PROGS S. HERTS.** to £8000  
High level programming experience. Some travel involved.  
**SYSTEMS ANALYSTS/BUSINESS ANALYSTS LONDON** to £8600  
Gain good experience with large IBM user.  
**COBOL PROGRAMMER LONDON** to £8000  
2 to 3 years' experience required. Gain communications exp.  
TELEPHONE: 01-435 6087  
Peter Barton or  
Bill Taylor  
**TAYLOR & WARD**

## UNIVERSITY OF EAST ANGLIA

Applications are invited for the newly established post of

### LECTURER IN MICRO-ELECTRONICS

The appointment will play an active role in the development of a new degree course in Micro-Electronics. The successful candidate will be required to teach all aspects of micro-electronics at Honours level, and to give elementary programming courses to students from all disciplines. They should have active research interests in some branch of micro-electronics. A Ph.D. in Micro-Electronics is desirable, but not essential if an applicant has adequate relevant experience. The posts are renewable from 1 September, 1980. The temporary appointment will be for one year. Salary on the scale £5,062 to £10,484 per annum with U.S.S. superannuation benefits. The starting salary will depend on age and experience.

Further particulars are available from Mrs E. C. P. Sainsbury, Section 509, The University, Southampton SO9 5NH, to whom applications (1 copy) from United Kingdom applicants should be sent not later than 1 Oct. 1979, quoting reference 1008/A.

Computer Two Thousand Ltd  
100 The Quadrant, (overlooked)  
207-218 Tottenham Court Road  
London W1P 9AF  
Tel: 01-636 7584 (24 hrs)

**2000**

## SMR

Sales & Marketing Recruiters Ltd  
Victory House, 30 Regent Street, London W1R 7HU  
01-479 9999

### SALES EXECUTIVES

Why lock yourself into a single job negotiation when we can cover the industry for you.

Sales and Marketing Services is unique in its ability to provide facilities for Sales Training, Market Research and Psychological Analysis as well as the Recruitment of sales and sales support personnel. We have the skills to provide career guidance for sales and marketing personnel as well as having access to all the major computer organisations. Thus we are ideally equipped to find the right jobs with the best companies.

Come and speak with us soon.

Tel: 01-734 9776

TRADER

### SENIOR ANALYSTS UXBIDGE

Three years' Analysis experience with some Programming required. Must have completed at least one Commercial System from feasibility study to implementation.

### PROGRAMMERS GUILDFORD To £7000

Junior Programmers and Programmers required with at least one year's experience of RPG-II or COBOL. On-line environment using Data Base/DBS.

### SYSTEMS ANALYSTS BRENTWOOD

Circa £7600  
Candidates should have at least two years Commercial experience with Programming background. Good company benefits.

### ANALYSTS & PROGRAMMERS

H. WYCOMBE Circa £7000  
Several vacancies exist in the High Wycombe area for a Systems Analyst with 2 1/2 years experience, two Programmers with at least one year's experience of RPG-II or COBOL. On-line environment using Data Base/DBS.

### SYSTEMS ANALYST EC1 & NEG.

Young Systems Analyst required by major British Company. At least one year's Analysis experience covering feasibility study to implementation. Would suit Analyst/Programmer. Excellent prospects.

Please write giving full details or Phone for an Application Form

## AMES PERSONNEL

Employment Agency Suite 14, Dryden Chambers,  
119 Oxford Street, London W1P 1PA Tel: 01-434 1106

## THE SALES BIT

# Be flexible— it's the only way to survive

SOME time ago I discussed in this column the difference between a sales benefit and a sales advantage.

In general terms, a sales benefit is a direct or indirect element of a product, or the implications of outcome of its use, which provides the user or buyer with a desirable feature or facility at a price he is prepared to pay. This might be better described as a "buyer benefit."

A sales advantage is a sales benefit that is unique to a salesman's product or service and therefore of more value to him than a feature which can be cancelled out by "me too!" activity from competition.

"The process-control system you select will not only be operating 24 hours a day, seven days a week, but will also demand immediate engineering support in case of any equipment failure at any time. We are the only company providing round-the-clock, on-call engineering maintenance that includes Saturdays and Sundays."

Which means that a sales advantage is worth any number of sales benefit as long as the buyers' needs are fulfilled. Conversely, a sales benefit does not exist if it is not needed.

All this leads me to a selling situation in which the salesman, by way of building his sales argument on special and unique product features, can get himself into an unrecoverable situation where the very benefits he has emphasised are the ones which prevent him from winning the order.

I call it "selling too tight," but you could describe it as selling without flexibility.

Some salesmen, typically those in the process of hawking a solution which is looking for a problem, justify the product they are proposing by stating that the configuration involved is either essential to the client's needs or the only model that is valid available. This is typified by the "overkill" proposal, prompted by anything from lack of imagination on the part of the salesman, to a special, bonus supported campaign to promote the sale of a particular product. The client is persuaded that there are no valid options in terms of desirability or supply, with much emphasis on special features and little consideration of absolute needs. A good hard "close," and often the salesman gets the order — but it's a risky business.

Once locked into an inflexible sales proposal, the salesman is bound with "essential" features and apparent lack of alternatives.

### Puzzle Answer

A 1000 x 1000 x 1000 cube is made of 1000 x 1000 x 1000 small cubes. The outer layer is painted. How many small cubes are painted?

Answer: 216,000

Marketing office

NEW marketing office in central London are being opened by Add Computers. This company is a specialist in the field of computer hardware and software. They are now looking for sales representatives in the London area. If you are interested, please contact them at 100, Strand, London WC2R 0JH.

Marketing office

of options, the salesman exposed to the possibility of having a credibility totally destroyed as a result of changes in strategy from competitive modifications to the need of the potential buyer at the possible realisation of the part of the client that I can live without a lot of the special features that have been proposed and saved himself a lot of money in the process.

What does the salesman do in such circumstances when the competitor comes in with a new model, or a "lean and mean" proposal that is geared only to handling today's realities rather than tomorrow's possibilities as well?

What happens when the client suddenly makes a significant reduction or increase in the size of the job? How does the salesman react to the fact that his competitors have convinced the client that a particular feature is essential in his needs when the salesman has already committed it — due perhaps to its high cost — and stated it was unnecessary or unavailable?

The easiest answer is "With extreme difficulty and without a loss of professional credibility."

The real answer is not to drive oneself into a negotiating cul-de-sac. There are usually enough market forces around to put the salesman into an "unrecoverable" situation without him inflicting it on himself.

Be flexible! That's the only way to survive in selling!

TRADER

### LSI brochure

A FOUR-PAGE brochure on the Digital Equipment LSI-11 and LSI-11/2 microcomputer systems has been produced by Rapid Recall. A full breakdown of CPU types is presented in tabular format, and there is an outline of the LSI-11 system, its features and the difference between the LSI-11 and LSI-11/2. Copies of the brochure, and associated literature, can be obtained from Norman Nicholl, Rapid Recall, 8 Soho Milla, Woodburn Industrial Park, Woodburn Green, Bucks.

### New premises

WABASH Tape (UK), the UK subsidiary of the US firm Wabash Tape Corp., has moved into new industrial premises. The new address is 43 Redhill Road, Eastern Industrial Estate, South Woodham Payers, Essex. Telephone 0245-22480.

### ATE package

A GUIDE to machines and systems for modernising and streamlining postal operations has been published by Royal Vickers Mailroom Division. It covers addressing and paper handling systems, postal routing, specialised mailroom furniture, and ancillary products from cheque, agenda to scales and shredders. Copies may be had from Royal Vickers Mailroom Division, 111, Mill Lane, London EC1A 3BB. Royal Vickers Mailroom Division, 111, Mill Lane, London EC1A 3BB.

### Marketing office

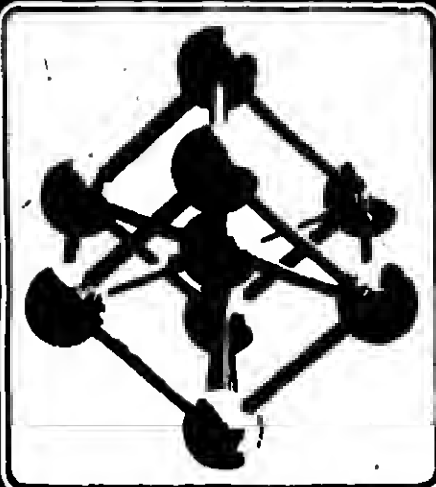
NEW marketing office in central London are being opened by Add Computers. This company is a specialist in the field of computer hardware and software. They are now looking for sales representatives in the London area. If you are interested, please contact them at 100, Strand, London WC2R 0JH.



# A major exhibition of computers, peripherals, terminals and services, held each spring in the most highly industrialised area of Western Europe.

## COMPEC EUROPE'80

Centre International Rogier, Brussels,  
May 6, 7 & 8, 1980



The ever-growing international attendance gives Compec Europe exceptional status as a sales platform for providers of hardware, software and services from every country. Ensure participation in its benefits by posting the coupon below.

### COMPEC EUROPE'80 STAND RESERVATION FORM

To: The Exhibition Manager, Compec Europe, Room 821, Dorset House, Stamford Street, London, SE1 9LU, England.

Please provisionally reserve for us stand space at Compec Europe 80 and send the undersigned more information.

Name \_\_\_\_\_ Company \_\_\_\_\_

NOW IN ITS  
**FIFTH YEAR**

**THORBAR**  
RECRUITMENT AND CONSULTANCY SERVICES LTD

Greenwich House 19 Cuckfield Road Huddersfield Sussex BA8 9RP  
Tel: Huddersfield 04743 833848/124 hour service  
Telex: 877797

SPECIALISTS IN DP AND EXECUTIVE RECRUITMENT.

Ref. CW/18/80

LONDON BASE

### DATABASE CONSULTANTS/ PROJECT MANAGERS

To £15,000 p.a.

OPPORTUNITY TO TRAVEL IN EUROPE WITH  
SUBSTANTIAL OVERSEAS ALLOWANCES

These are attractive opportunities for well qualified professionals to join a large and highly reputable international consultancy, working within the field of advanced technology. You will be expected to possess experience in the following areas:

1. A sound systems background having worked with or led a major project from the feasibility stage through to full implementation.
2. Experience in working with Database Software — such as IDMS/DL1/TOTAL is essential.
3. French or Dutch as a second spoken language would be advantageous.
4. Experience gained from designing financial systems, although not essential, is desirable.

CALL US NOW (24-HOUR ANSWERING SERVICE) OR  
WRITE TO US TO OBTAIN MORE INFORMATION ABOUT  
THESE OPPORTUNITIES



**MICHELIN**

### SWITCH TO MICHELIN SENIOR ANALYST- PROGRAMMER

MANAGEMENT SERVICES DEPT., LONDON, S.W.3

Michelin, the leading British radial tyre manufacturer, wish to recruit a Senior Analyst Programmer to be a project leader, with direct responsibility for the analysis, design and programming of Commercial Computer Systems.

The work involves some liaison with the main-frame installation at our State-of-the-Art Manufacturing Headquarters and Commercial offices throughout the U.K.

Good experience of analysis and programming essential. Sound training in programming on mainframe computers essential. Courses in assembly, which should have included COBOL.

Age range: ideally over 25 years with a minimum of 5 years' experience on Honeywell/IBM/ICL Computer equipment in an industrial/commercial environment.

Michelin offer an individually negotiated salary to attract the calibre of Senior Analyst-Programmer required; five weeks' paid holiday plus statutory holidays; free life assurance and contributory pension scheme.

Above all we offer a career associated with first-class products renowned for their quality, together with effective Personnel Policies.

Please write in confidence giving details of age, work experience, qualifications and current salary to:

The Personnel Manager—Commerce  
(Ref. JFC/BA/1/80)  
MICHELIN TYRE CO. LTD.  
81 Fulham Road, London SW3 5RD  
or Telephone 01-898 1460 for an application form.

### Cambridge City Council SYSTEMS ANALYST (Re-Advertisement) (Salary up to £8,090, with Comparability Award pending)

An additional Systems Analyst is required to join a small team within the City Treasurer's Department. The Council operates on ICL 2804 with EDS 80's and two 7502's serving enquiries and ICL's new Counter Terminal System.

The main development in the next two years will be a Management Information System running under Database Management Software. Further information is obtainable from the Computer Manager, D. Smith, 10223-358977 Ext 2841.

Relocation and assistance with housing accommodation are allowed in approved cases. Other benefits include flexible and full insurance. Applications giving full details of experience and qualifications must reach the undersigned by Monday 31st March 1980.

Previous applicants need not re-apply.  
City Treasurer, Guildhall,  
Cambridge CB2 3QJ. 1726

PEAK DISTRICT  
SENIOR SYSTEMS ANALYST

Our client is seeking an Analyst with 3 to 4 years general experience to work on on-line and advanced data-base systems. Progressive company with good prospects.

PEAK DISTRICT  
SENIOR SYSTEMS ANALYST

Expanding installation require 2 further Analysts with a commercial background to work on the latest hardware utilising sophisticated on-line/data-base techniques.

CHESTER  
COBOL PROGRAMMERS

If you have around 2 years COBOL experience gained on any hardware, and preferably but not essentially some manufacturing/production applications experience, our client will negotiate a very attractive package.

MERSEYSIDE  
PROGRAMMERS, SYSTEMS ANALYSTS

As a result of further expansion, an client urgently requires D.P. professionals with over 2 years experience. IBM COBOL in the Programming positions is required together with a commercial analyst background for the Systems Analyst posts.

BOX Nos.

Box number replies should be addressed to:

Box No. ....  
c/a Computer  
Weekly  
Dorset House  
Stamford Street  
London SE1 9LU

Greater Manchester Council  
COUNTY ENGINEER'S  
DEPARTMENT

### URBAN TRAFFIC CONTROL

The County Engineer has now taken delivery of the central computer which is the "heart" of the UTC scheme. There will be over 800 sets of signals on line covering the whole of the GMC area.

As the project is entering the implementation stage the computer and traffic management (signals and network) are being combined and expanded and the following staff are now urgently required.

### CHIEF ENGINEER— Special Grade

£8657/£10,170 p.a.

To control a staff of (approximately) 25 and be responsible for the installation, management and development of the systems. Applicants should hold a professional qualification and considerable relevant experience (not necessarily within Local Government).

### SECTION ENGINEER (Systems-Hardware)

PO1 (6-10) £7125/£7908 p.a.

Responsible for the work of the Hardware Team and to contribute to future development plans. Applicants will be experienced staff managers, subletly qualified with experience in electronics, computer hardware and data transmission.

### ASSISTANT PROGRAMMER

AP3/5-£4080/£5647 p.a.

To assist with further development of the system software. A knowledge of CORAL 66 would be useful but is not essential. Conditions of service include removal, legal etc. expenses up to £750; lodging allowance; generous leave entitlement. Pay award pending on 01/04/80.

Application form, job description and further details available from the County Personnel Officer, County Hall, Piccadilly Gardens, Manchester M60 3HP. Tel. (061) 247 3325/8. Closing date — 31st March.

## NORTH WEST

### S. MANCHESTER ANALYST/PROGRAMMERS

This professional and highly successful consultancy requires further Analyst/Programmers with over 3 years IBM experience. This should include COBOL or PL/I with CICS and/or OLI exposure. First rate jobs with excellent prospects.

### CHESTER SYSTEMS ANALYSTS

This major organisation is undertaking large development plans and require Analysts with 3 years experience of a general commercial or production nature. Multi-machine environment.

### PEAK DISTRICT SENIOR SYSTEMS ANALYST

Our client is seeking an Analyst with 3 to 4 years general experience to work on on-line and advanced data-base systems. Progressive company with good prospects.

### PRESTON SYSTEMS ANALYSTS

Expanding installation require 2 further Analysts with a commercial background to work on the latest hardware utilising sophisticated on-line/data-base techniques.

### CHESTER COBOL PROGRAMMERS

If you have around 2 years COBOL experience gained on any hardware, and preferably but not essentially some manufacturing/production applications experience, our client will negotiate a very attractive package.

### MERSEYSIDE PROGRAMMERS, SYSTEMS ANALYSTS

As a result of further expansion, an client urgently requires D.P. professionals with over 2 years experience. IBM COBOL in the Programming positions is required together with a commercial analyst background for the Systems Analyst posts.

### PRESTON SENIOR PROGRAMMERS

Our client has recently installed new hardware and is seeking Programmers with over 2 years COBOL and some on-line exposure. The installation is expanding dramatically and offers excellent prospects.

### CHESTER IBM PROGRAMMERS

COBOL or PL/I Programmers with some on-line or data-base exposure are urgently required by one of our major clients. You should have over 3 years commercial experience and wish to carve out a career with this company.

### MANCHESTER/CHESTER REAL-TIME PROCESS CONTROL

Our client requires Programmers and System Designers with industrial control experience typically on POP, INTEL and ZILOG using CORAL, RTL1, etc. These positions offer excellent salaries dependent on experience, and real job satisfaction.

### MERSEYSIDE SENIOR ANALYSTS

If you can combine a good academic record with over 3 years large systems experience our client can offer exceptional prospects. Developments are diverse and are of a highly sophisticated nature.

Contact STEVE SYKES in Leeds (0532) 444186 (daytime) or on LEADS (0532) 862417 (evenings and weekends) or write to the address below.

## MIDLANDS VACANCIES

### BIRMINGHAM PROJECT LEADERS

Our Client, a chemical manufacturer is currently seeking project leaders who can lead a team of 10 people. You will have experience in production control systems and have implemented at least 1 major system.

### ANALYST/PROGRAMMERS BIRMINGHAM

A major manufacturer needs analyst/programmers with a minimum of 2 years experience who are capable of systems design and program specification to develop new systems.

### BIRMINGHAM PROGRAMMER

This company is looking for a programmer with about 18 months experience of COBOL. You will be writing programs from specifications and will be taught to use large ICL New Range equipment with on-line and data base facilities.

### HINCKLEY ANALYST/PROGRAMMER

A major company in the service industry is currently seeking an analyst/programmer to assist in the development of an on-line system. You will have a minimum of 1 year's experience in analysis and 2 years COBOL programming.

### HINCKLEY PROGRAMMER

A major servicing company requires a COBOL programmer with a minimum of 12 months experience. You will be trained to work on a new computer with on-line facilities with superb working conditions.

### COVENTRY SYSTEMS ANALYSTS

A large manufacturing group needs analysts with a commercial and/or production background. They offer a high salary and excellent working conditions and a very attractive package.

### WALSALL SYSTEMS ANALYST

This company is in need of a systems analyst to develop new systems. You will have a good track record and preferably a experience of accounting, personnel or word processing systems.

### ANALYST/PROGRAMMERS HALESOWEN

A computer manufacturer is looking for two analyst/programmers to work in pre and post sales support. These people will have a good commercial background and a willingness to get involved.

### BIRMINGHAM ANALYST/PROGRAMMER

A retail organisation has taken delivery of an ICL 2904 and would like to employ an analyst/programmer to assist in the development of new commercial systems. You will have to be dynamic and self-motivated.

### CANNOCK PROJECT LEADER

Our client, a large engineering company is seeking an experienced systems analyst to work in the role of business analyst/project leader. You will be able to demonstrate these qualities and have a successful track record.

### WARLEY PROGRAMMER

This company needs a COBOL programmer who can show good experience. Knowledge of ICL 2904/OME, Data Driver and/or TMI an added advantage.

### HALESOWEN PROJECT LEADER

If you have the ability to be a successful project leader and want to work in a demanding environment, and have good experience of commercial applications then this computer manufacturer will offer a good salary and an exciting environment.

Please PETER GILBERT on LEADS (0532) 444186 (daytime) or on BRADFORD (0274) 864074 (evenings and weekends) or write to the address below.

**LORIEN**  
COMPUTER SERVICES

Recruitment Consultants  
OF STONE ROAD LEEDS LS1 9PL  
Telephone 0532 444186  
24 hour telephone service